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SWEDISH UNIVERSITY
OF
AGRICULTURAL SCIENCES
DEPARTMENT OF URBAN AND RURAL DEVELOPMENT

A MASTER'S OF SCIENCE THESIS

WITH SPECIALIZATION IN INTEGRATED WATER RESOURCES MANAGEMENT

STAKEHOLDERS PARTICIPATION AND FEEDBACK MECHANISIM IN BSAP ADOPTION AND IMPLEMENTATION

Case study

Sweden at National Level

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Submitted to;

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Sweden, Uppsala
JUNE, 2009

ABSTRACT

Due to the interdependency that exists between the ecosystem resources and its users, successful implementation of ecosystem-based management depends on the identification and understanding of different stakeholders, their practices, expectations and interests. Today, many scientists and resource managers agree that the involvement of stakeholders is a key factor for a successful management regime in the marine environment. The way stakeholders are involved in the process must reflect, or at least address, the existing complexity of the specific context. The need for well structure delivery of feedback mechanism and means of communication between stakeholders is an encouraging driving force to enhance level of participation at all stages of any management plan. A comprehensive method that allows doing this is by use of stakeholder analysis and mapping.

This study aims to examine stakeholders participation and their role in HELCOM, BSAP adoption and implementation process. It also attempted to map, monitor, evaluate and assess the existing feedback mechanisms for providing Swedish stakeholder feedback to HELCOM Action Plan.

In order to accomplish the aim of the study, the concept and principles of Soft Systems Methodology (SSM) were applied as key methodology of the study. This methodology was strengthened by using Qualitative Methodology and PRA tools for collecting, analyzing and interpreting data. Standardized open-ended interview and PRA tools were used for collecting primary data through discussions, meetings and dialogs with key governmental and nongovernmental institutions/ organizations/ stakeholders/ informants. Primary and secondary data were analyzed and interpreted using Case analysis and Cross-case analysis.

HELCOM highlighted that the HELCOM Baltic Sea Action Plan has been carried out with the active participation of all major stakeholder groups in the region from governments and NGO's, even down to lowest levels including older and younger generations, and organizations in both the private and the public sectors. But in contrary to HELCOM statement, the study findings highlights the participation of stakeholders in BSAP adoption was not up to scratch. Most of them were participated in a passive and observant status and hence it indicates their participation is not to bring change on the action plan. Furthermore, they are not engaged in decision making process of BSAP adoption and implementation. The

level of participation of most stakeholders is not beyond the information sharing. This study elucidates that they have only knowledge about the decisions made by the responsible bodies and governmental delegates. It also highlights no well structured feedback mechanism and means of communication among stakeholders and between HELCOM existed. It is a one way and not well structured. Rather it is in an informal way of communication. The study also revealed the lack of binding legislation and lack of funding together with the current global financial crises are at the forefront of the challenging events to BSAP implementation.

At the end, HELCOM and responsible bodies for BSAP package should use both participatory (bottom-up) and classical (top-down) approaches blended contextually for BSAP adoption and implementation. Appropriate measures to Stakeholders' empowerment and well structured communication and viable feedback mechanisms should be taken to create a platform both for the full and equal participation of all stakeholders with binding forces and good communication between HELCOM and Stakeholders and/ or among stakeholders to enhancing BSAP implementation in effective and efficient way so as a clean Baltic Sea with healthy ecosystem could be maintained are recommendations suggested by the study.

ACKNOWLEDGEMENT

We are grateful to the programme coordinator of Integrated Water Resources Management and our supervisor assistant professor Neil Powell. His guidance and comments were indispensable not only for the accomplishment of this work but also during our stay in the program. Our similar gratitude extended to his wife Stina Powell, for her commitment in helping us.

This thesis would not have been easy unless we heartily thankful to Professor Sirskandarajah Nadrajah, whose intellectual encouragement, guidance and support from the initial to the final level enabled us to develop an understanding of the subject. His assistance during all the academic and social challenges was enormous and remains memorable throughout our life time. We thank and love you so much professor.

We would also want to thank all staff members of organizations/institutions/ministries who participated in this study, especially to those who gave us interviews and discussions.

During our study at SLU, we enjoyed the Friendly atmosphere in the Urban and Rural development, especially with class mates of the integrated water resources program. We would like to appreciate the pleasant attitude and co-operation of all staff members and students of SLU. Special thanks to Urban and Rural education administrator Helen Arvidsson, for the warm and honest friendship and all round administrative assistance given to us has been another valuable offer. We would like to thank for close friendship assistances: Abdelaziz Abdelkarim, Kasaye Tekola, Tesfanesh Gichamo, Vanessa, Rasmus Klocker Larsen, Sukanda, Evgheni Ermolaev and others whose name not mentioned here.

Last but not least, we would like to express our deepest appreciation to our family for their care and love, for remembering us in all their prayers and for believing in us. Our last words of appreciation and respect are reserved to our beloved; the two Beyenes' (Elieni and Salem), your constant warm e-mails, encouragement, prayers and love have given us an added energy to complete this study.

DEDICATION

To

Our late father, Goitom Tesfatsion, late grandmother Simret Mehari,

Both passed away in 2008.

And

Those who lost their lives in the unjustified war between Ethiopia and Eritrea

From 1998-2000.

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ACRONOMYS

- BSAP- Baltic Sea Action Plan
- CAP – Common Agriculture Policy
- CATWOE – Consumers, Actors, Transformation, Worldview, Owners and Environment
- CCB - Coalition Clean Baltic
- CFP – Certified Financial Planner
- 5 E's – Efficacy, Efficiency, Effectiveness, Ethics and Elegance
- EU – European Union
- Gov't – Government
- HELCOM - Helsinki Commission
- LRF- Swedish Farmers Federation
- MARE -NEST Model – Marine Research- a decision support system for management of eutrophication in Baltic Sea
- MoA – Ministry of Agriculture
- MoE - Ministry of Environment
- NGO's – Non Governmental Organizations
- PLC – Pollution Law Compilation
- PRA- Participatory Rural Appraisal
- SBoA – Swedish Board of Agriculture
- SEPA- Swedish Environmental Protection Agency
- SIDA – Swedish International Development Cooperation Agency
- SLU – Swedish University of Agricultural Sciences
- SWOT- Strength, Weakness, Opportunity, and Treats.
- UBC – Union of the Baltic Cities.
- EU-WFD – Water Frame Directives
- WWF – World Wide Fund for Nature

CHAPTER ONE

1.1 Figures and Facts of the Study Area

1.1.1 The Baltic Sea

The Baltic Sea is unique: the largest body of brackish (low-salinity) bodies of water in the world (Kindler eta l). It is also distinguished by its division into a series of basins of varying depths, separated by shallow areas or sills (HELCOM, 1993). The Baltic sea stretches from the gulf of Finland to Kattegat over 1200km in the east-west direction and from Odra Bay to Bottanian Bay near the polar circle over 1300km in the north-south direction(Ulrich Schiewer, 1997).

According to Ulrich (1997), the Baltic Sea covers an area of 415,266km^2 and has a water volume of approximately 21,000km^3. It has a drainage basin area that is four times larger than the Sea itself. Nine countries share the Baltic Sea coastline; Sweden and Finland to the north, Russia, Estonia, Latvia and Lithuania to the east, followed by Poland in the south, and Germany and Denmark in the west (HELCOM, 1993) (Figure 1). The catchment area, however, also extends over parts of Belarus, the Czech Republic, Norway, the Slovak Republic and Ukraine*)*. For a map of the Baltic Sea's drainage basin see (figure 1). Over 16 million people live on the coast and about 80 million in the sea's catchment area (Olanda osvath, *et al.*, 1999).The entire population of the BSR thus impacts the state of the sea even from areas located far from the sea shore and thus the group of potential stakeholders is large.

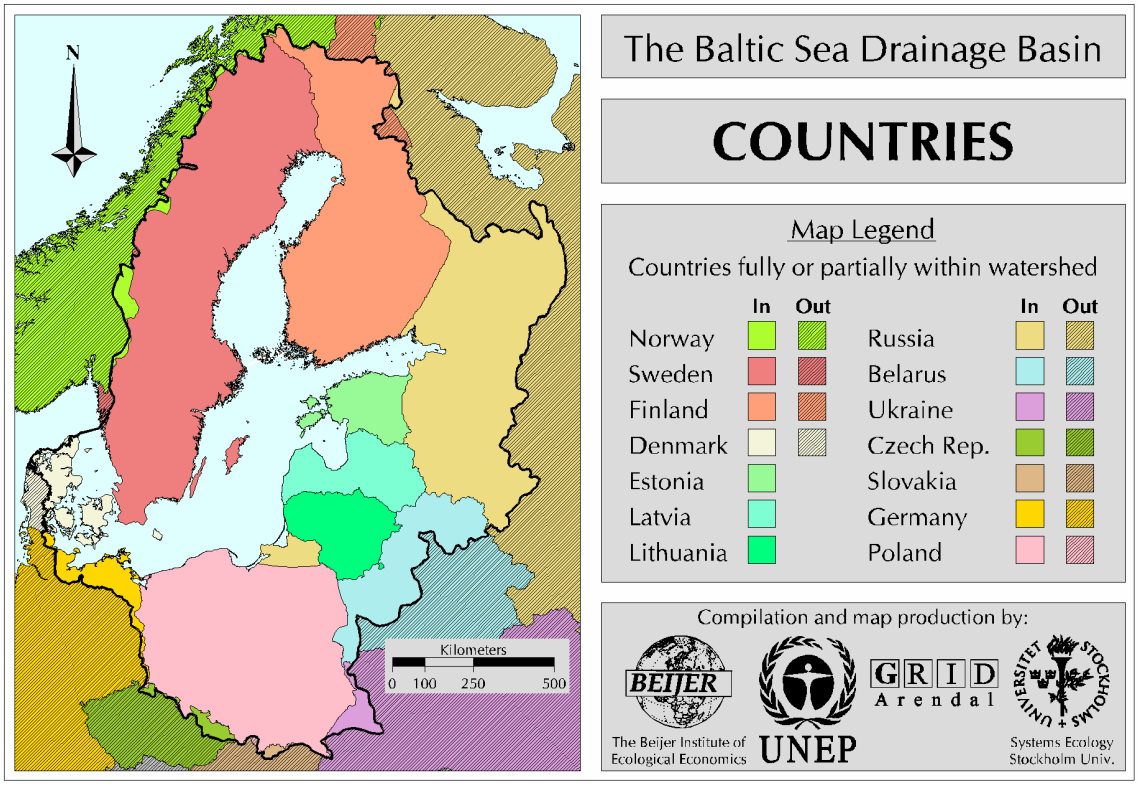

Figure 1. The map of the Baltic Sea region.

The map displays the 14 countries that are positioned fully or partially with in the Baltic Sea drainage basin. The portion of an individual country that lies within the basin is distinguished from the part that lies outside (source Baltic sea region GIS, Maps and statistical database, UNEP 2001)

1.1.2 The Protection of the Baltic Sea

The main problem areas in the Baltic Sea are: eutrophication caused by increasing nutrient loads, bioaccumulation of harmful substances, increased maritime transport and a subsequent risk of more chemical or oil spills and excessive fishing. (Finish ministry of environment, *http://www.environment.fi/)*

According to Köhn (1998) it can be presumed that there should be a shared interest within the countries close to the coast in protecting the Baltic Sea, as it is a source of economic benefits. There are several conventions aiming to protect the Baltic Sea, covering all from protection from land-based pollution, sea-bed activities, shipping, radioactive substances to protection of endangered species (Rydén *et al*. 2003). Regional conventions or agreements have been used as a complement to international agreements (Uggla 2007) and one of them is the Convention on the protection of the marine environment of the Baltic Sea area, also known as the Helsinki Convention (Ehlin 1999). The Baltic Marine Environment Protection Commission, also called the Helsinki Commission (HELCOM), is responsible for implementing the convention.

1.1.3 The Helsinki Convention and HELCOM

The first Helsinki Convention was formed in 1974 and entered into force in 1980, aiming at protecting the Baltic environment from pollution in all forms (Ehlin 1999). The convention was signed by seven states in the Baltic region; Denmark, Finland, German Democratic Republic, Federal Republic of Germany, Poland, Sweden and the Soviet Union. In 1992 the convention was revised to strengthen the protection of the Baltic Sea (Rydén *et al*., 2003). The new convention advises that preventive action should be taken against pollution and principles such as the precautionary principle were included. The whole Baltic Sea area is included along with inland waters and the sea-bed (HELCOM 2004) .The convention entered into force in 2000 after it was signed by Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Russia, Sweden and the European Community. HELCOM was constituted to monitor the implementation of the convention and review the content of the convention (Rydén *et al*., 2003).

The goal of HELCOM is to "protect the marine environment of the Baltic Sea from all sources of pollution, and to restore and safeguard ecological balance" (HELCOM 2007). All decisions are made unanimously and are recommendations with no legal inflictions. HELCOM has formulated the *HELCOM Baltic Sea Action Plan* (BSAP), in November 2007.

1.1.4 The HELCOM Baltic Sea Action Plan (BSAP)

The Ministers of the Environment from the Baltic Sea Countries and the High Representative of the European Commission have in November 2007 within the framework of HELCOM adopted HELCOM Baltic Sea Action Plan (BSAP) concerning the Baltic, the Danish Strains and Kattegat. The Baltic Sea Action Plan is a first ever attempt by a regional seas convention to incorporate an innovative ecosystem-based approach into the protection of the marine environment (HELCOM, 2007)

The HELCOM Baltic Sea Action Plan is an ambitious programme to restore the good ecological status of the Baltic marine environment by 2021 (HELCOM, 2007).The action plan consists of roughly 150 different activities in four main segments and another four sections. The main segments cover Eutrophication, hazardous substances, biodiversity and nature conservation including fishery, and maritime activities. The other four sections concern development of assessment tools and methodologies, awareness raising and capacity building, financing and implementation and review of the Baltic Sea Action Plan.

According to the plan the Baltic Sea Countries shall develop and to submit for HELCOM´s assessment national programmes by 2010 with a view to evaluate the effectiveness of the programme at a HELCOM ministerial meeting in 2013. The ministerial meeting will evaluate whether additional measures are needed. For many of the actions no timetables are given which mean that timetables should be set in the further work of HELCOM.

CHAPTER TWO

2.1 INTRODUCTION

2.1.1 Relevance of the Study

The goal in all environmental management and protection internationally, regionally as well as locally, is to preserve the environment and the natural resources by urging preventive action (P.Joenniemi 1993). Damaged environment should however be improved.

Management of the marine environment is a matter of societal choice (Robert Pomeroy and Fanny Douvere 2008). It involves decision making in terms of allocating parts of three-dimensional marine spaces to specific uses to achieve stated ecological, economic and social objectives. People are central to this decision-making process and are the agents for change. As such, stakeholder participation and involvement is integral to the success of any planning. Increased stakeholder participation and involvement in the resource management decision-making process has gained acceptance worldwide (P. McConney et *al.,* 2003*).*(Robert and Fanny,2008),states that the reasons why is important to involve stakeholders is to create better understanding of the complexity of the ecosystem and the human influence on the ecosystem and its management; examining the compatibility and/or (potential) conflict of multiple use objectives; identifying, predicting and resolving areas of conflict; and discovering existing patterns of interaction.

In addition, stakeholder involvement provides an opportunity to deepen mutual understanding about the issues at hand, explore and integrate ideas together, generate new options and solutions that may not have been considered individually and ensure the long-term availability of resources to achieve mutual goals (M. Hauck *et al*, 2003).Stakeholder involvement can increase stability in a complex environment and expand capacity rather than diminish it under changing circumstances. All of these issues are becoming increasingly important in the context of Baltic Sea management to avoid incompatible uses, resolve conflicts and move toward ecosystem-based.

The Baltic Sea has however been strongly affected and threatened by the human activity in the area (Ehlin 1999). There are several conventions and documents aiming at protecting the Baltic Sea and therefore, The Ministers of the Environment from the Baltic Sea Countries and the High Representative of the European Commission have in November 2007 within the framework of HELCOM adopted The HELCOM Baltic Sea action plan .(BSAP)

HELCOM highlighted the HELCOM Baltic Sea Action Plan has been the active participation of all major stakeholder groups in the region. Such participation ensures that the plan is truly relevant and can be effectively implemented in practice. According to HELCOM, the choices that they make reflect the choices of society as a whole. For this reason, the common vision of the healthy Baltic Sea has been defined together with all participating stakeholders – from governments, through industry and NGOs, right down to individual citizens, including older and younger generations, and organizations in both the private and the public sectors.

The main purposes of the research is therefore to examine the stakeholders participation in BSAP adoption and implementation, and To map, monitor, evaluate and assess the existing feedback mechanisms for providing key stakeholder feedback to HELCOM in Sweden. The purpose of the objective of the research should grow out of problem statement: following the next section.

2.1.2 General Problem of the Statement

Biodiversity in the marine environment continues to decline and human activities are at the centre of this destructive evolution (Douvere Fanny *et al*., 2009). Ongoing population growth, technological change and shifting consumer demands, especially in richer countries, all have considerably increased the need for more food, more energy, and more trade. An increasingly larger share of goods comes from marine resources. Especially after World War II, existing activities such as fisheries, shipping, dredging and oil exploitation expanded rapidly while new uses including recreation, mineral extraction, and more recently wind energy and offshore marine aquaculture, have started to claim their own spaces in the marine environment (F.Douvere, *et al.*, 2007).

Increased pressure on the marine environment has led to two important types of conflict (Douvere Fanny *et al.*, 2009). First, not all uses are compatible with one another and are competing for ocean space or have adverse effects on each other (use-use conflicts, e.g., offshore oil exploitation and fisheries). But a much bigger concern, however, is the cumulative effects of these activities on the marine environment, or in other words the conflicts between users and the environment (use-environment conflicts, e.g., fisheries and habitat loss)

With human activities and resource use continually developing and nature itself changing in space and time, it is obvious that conflicts are increasingly likely (A., Rosenberg, J., Wilson 2006). The only solution to resolve these conflicts is through management of human activities (sea use management) that addresses their impact in space and time. There is an urgent need to organize human activities in certain places, and with certain time constraints that minimizes negative impacts on ecologically valuable areas of the marine ecosystem and among other anthropogenic activities.

Environmental problems in the Baltic Sea are particularly serious and some researchers are talking about an ecological collapse (Swedish Ministry of Environment, 2006). According to HELCOM, The environmental situation in the Baltic Sea has drastically changed over recent decades. Human activities both on the sea and throughout its catchment area are placing rapidly increasing pressure on marine ecosystems. Of the many environmental challenges, the most serious and difficult to tackle with conventional approaches is the continuing eutrophication of the Baltic Sea. Inputs of hazardous substances also affect the biodiversity of the Baltic Sea and the potential for its sustainable use. Such problems call for immediate wide-scale action to put an end to the further destruction of the Baltic Sea environment and to avoid an irreversible disaster. Failure to react now would undermine both the prospects for the future recovery of the sea and its capability to react to the projected stress by the climate change. Furthermore, inaction will affect vital resources for the future economic prosperity of the whole region and would cost tenfold more than the cost of action.

To bring about sustainable solution for the complex environmental issues, the participation of stakeholders at all level of any environmental management plan is then very important. There

may be different stakeholders depending on their interests, their ways of perceiving problems and opportunities concerning marine and coastal resources, and different perceptions about and needs for management. Not all stakeholders have the same stake or level of interest in the marine environment, and thus may be less or more active and have different entitlements to a role in the marine management process (Robert Pomeroy *et al*., 2008).

Thus there is a need for research and capacity building to understand the complex issues of marine and coastal water management. Hence this research will examine the participation of stakeholders in BSAP adoption and implementation and their feedback mechanism so as to improve the level of participation.

2.1.3 Scope and Limitation of the Study

The study focuses on the participation of stakeholders in the HELCOM BSAP adoption and implementation and feedback mechanism. At the very begging, the researchers wanted to conduct the study on the whole Baltic sea region in order to maximize data reliability and avoid bias and thereby achieving full opinion and participation of all contracting parties/stakeholders. However due to financial and time constraints the research was conducted only at Sweden national level. As long as the environmental, economical and social issues of the Baltic sea is meant to all members of the society, the stakeholder samples were taken from governmental and nongovernmental organizations. However, due to lack of enough sources of information as a means of communication, some stakeholders (e.g. Maritime administration and municipalities, ministry of energy and transport), which might have a profound impact to the BSAP are not includes in the study. And therefore, the result may not represent the exact opinion of stakeholders from all over the region and at the lowest level.

Additional limitation relates to the researchers social and cultural differences. Both the researches come from east Africa (Ethiopia and Eritrea) where a gap in communication and social interaction to the western world is noticeable. As a result, to create the first contact and meet the representatives from each organization/stakeholder on the right time was challenging to the study.

2.1.4 Structure of the Study

This thesis is organized in seven chapters. Chapter one gives highlights about the case study background information. Chapter two explains the relevance of the study, general problem of statement and the scope and limitation of the study. Chapter three reviews basic theoretical concepts and other related literatures. Chapter four presents the objectives, key questions and methodology of the study. Chapter five explains case study of all stakeholders. Chapter six explains the main issues of the study. Finally, Chapter seven marks the conclusions with the summary of findings and recommendations.

CHAPTER THREE

3.1 REVIEW OF LITERATURE RELATED

3.1.1 Soft System Methodology

3.1.1.1 Definition and Concept of SSM

SSM is a systems-bases approach in the management filed that is designed to address complex problematic situations involving human activity. It informs a process by which iterative operation of the methodology promotes learning and stimulates action for the desirable and feasible (Martin J., 2003). Adaptations of this methodology have increasingly been advocated and used in environmental and management and rural development projects.

In the first full account of this methodology, Checkland (1976) describes three of the most significant early project experiences that led to the break from systems engineering and the formulation of SSM. In all three it was clear that serious problems existed in the organizations of interest, but the clients simply could not say what they were in precise terms. Each of the problem situations was vague and unstructured. One of the projects, in a textile firm, gave rise to at least a dozen candidates for the role of 'the problem'. Generalizing from these three projects, Checkland was able to specify how SSM needed to differentiate itself from hard approaches (Michael. C, 2003).

First, in confronting 'softer' problems the analysis phase of a methodology should not be pursued in system terms. In the absence of agreed goals and objectives, or an obvious hierarchy of systems to be engineered, using systems ideas too early can lead to a distortion of the problem situation and jumping to premature conclusions. Analysis, in soft systems approaches, should consist of building up the richest possible picture of the problem situation rather than trying to capture it in systems models. (Michael. C, 2003)

Second, given that it is not obvious which if any system needs to be engineered, it is more appropriate from the analysis to define a range of systems possibly relevant to improving the

problem situation, each expressing a particular worldview (or Weltanschauung). These notional systems can be named in ‘root definitions’ and developed more fully in ‘conceptual models’. The use of SSM will therefore lead to the construction of a number of models to be compared with the real world, rather than just one as in hard methodologies (Michael. C, 2003).

These models represent ‘human activity systems’ and Checkland came to recognize their delineation as one of the most important breakthroughs in the development of SSM. Previous systems thinkers had sought to model physical systems, designed systems, even social systems, but they had not treated purposeful human activity systematically. A human activity system is a model of a notional system containing the activities people need to undertake in order to pursue a particular purpose. (Michael. C, 2003)

Finally, while the models produced by the hard approaches are meant to be models of the real world or blue prints for design, human activity system models are contributions to a debate about change. They explicitly set out what activities are necessary to achieve a purpose meaningful from a particular point of view. On the basis of such models, participants in the problem situation aim to learn their way to what changes are systemically desirable and culturally feasible. The models are thus epistemological devices used to find out about the real world (Michael. C, 2003).

Soft Systems Methodology places an emphasis on human activity systems i.e. humans involved in purposeful activity within an organization of some sort. The methodology provides window through which the complexity of such human interaction can be investigated, described and hopefully understood. Once an understanding of the situation under study has been achieved then methodology allows the identification of change is both systemically desirable (in that it will alleviate some of the problems and issues) culturally feasible (in that actors within the system will be inclined to engage with the changes proposed and the change process itself). SSM encourages learning and understanding which will hopefully lead to agreed change and the resolution problems. (Jon Warwick, 2008).

3.1.1.2 Steps (Phases) in SSM

The main steps (phases) in SSM are illustrated in Figure. The methodology contains two kinds of activity as illustrated in the diagram. It has two parts: the top part, Stages 1, 2,5,6,7 are 'real world' necessarily involving people in the problem situation. These stages will be whatever the normal language of the situation is. Whereas, the bottom part, Stages 3, 4, 4a, 4b are 'systems thinking' activities which are carried out in the language of systems and may or may not involve people in the problem situation, depending on the individual circumstances of study (Checkland 1999).

Stages 1 and 2 'Expression (The Problem Situation Unstructured and Expressed)'

In stages 1 and 2 of SSM are expression phases during which an attempt is made to build up the richest possible picture, not of the 'problem' but of the *situation* in which there is perceived to be a problem. This is done by collecting various perspectives and different stakes of stakeholders in the problematic situation. It has been found most useful to make the initial expression a building up of *the richest possible picture* of the situation being studied. Such a picture then enables selection to be made of a view point (or view points) from which to study further the problem situation. Once that selection is made, of course, one or more particular systems, which will be part of a hierarchy of systems, are being defined as *relevant to problem solving.* The function of stages 1 and 2 is to display the situation so that a range of possible and, hopefully, relevant choices can be revealed, and that is the only function of those stages. (Checkland 1999).It is in achieving as neutral a display as possible that the concepts of 'structure', 'process', and 'the relation between structure and process' have been found useful. 'Structure' may be examined in terms of physical layout, power hierarchy, reporting structure, and the pattern of communications both formal and informal. 'Process' may frequently be examined in terms of the basic activities of deciding to do something, doing it, monitoring both how well it is done and its external effects, and taking appropriate corrective action. The relationship between structure and process, the 'climate' of the situation, has frequently been found to be a core characteristic of situations in which problems are perceived (Checkland 1999).

Stage 3 'Developing a Root Definition of Relevant Systems'

At the end of the expression stage we answer the questions, not: what system needs to be engineered or improved? But: what are the names of notional systems which from the analysis phase seem relevant to the problem? It is essential to answer the question carefully and explicitly, writing out and discussing openly a rather precise account of the nature of the system or systems chosen. The choice will represent a particular outlook on the problem situation and the purpose of naming the system carefully is both to make that outlook explicit and to provide a base from which the implications of taking that view can be developed. The choice of what I have called 'a Root Definition of a relevant system' is not ultimately committing, in the sense that if later stages reveal the choice to be lacking insight, irrelevant or infertile then other viewpoints may be tested.

'Relevant does not here imply that the system selected is necessarily desirable, certainly not that it is the system which ought to be designed and implemented in the real world.

A root definition should thus be a concise description of human activity system which captures a particular view of it. In trying to use the methodology a number of people have been dismayed by their inability to think up 'brilliant' definitions, but a root definition does not have to be noticeably clever to be useful. The question is: Given the picture of the problem situation and the perceptions of 'the problem' by people in it, does the suggested root definition seem to have a chance of being useful? And that can be answered only by testing some possible definitions, even if they seem commonplace (Checkland 1999).

Stage 4 'Building a Conceptual Model'

In stage 4 a conceptual model is made of the activities that must exist in the system defined in the root definition, 'what the system must *do* in order to *be* the system named in the definition'. The system is often pictured as an entity that receives some inputs and produces some outputs, in other words a system that performs a transformation process. When making a conceptual model you ask yourself: what activities in what sequence need to occur in order to do the transfer? How the activity should be done should be debated latter unless there are particular constraints in the root definition. Sometimes sub-systems for the different activities are also illustrated. This may entail modelling information and/or planning system to serve the main activity system modelled.

It is important that first a model is developed and agreed on for the activity system before modelling begins for linked information or planning system. This applies whenever one system serves the purpose of another which includes all information, planning and (quality) control systems (Checkland 1999).

It is not important to recognise that a conceptual model is not a state description of any actual human activity system nor is it a normative model of what should be- a system to be designed. It is used in the next stages as a tool for generating debate (Checkland 1999).

Stage 5 'Comparison Conceptual Models with Real World'

In stage 5, the models from stage 4 are brought into the real world and set against the perceptions of what exist there; the purpose is to generate debate with concerned people in the problem situation. As part of this one asks**:** Are activities present in the real world? How well are they done? Then alternatives suggested by the models are discussed. The outcome might be to suggest changing how things are done 'hows' or introducing new activities 'whats'(Checkland 1999).

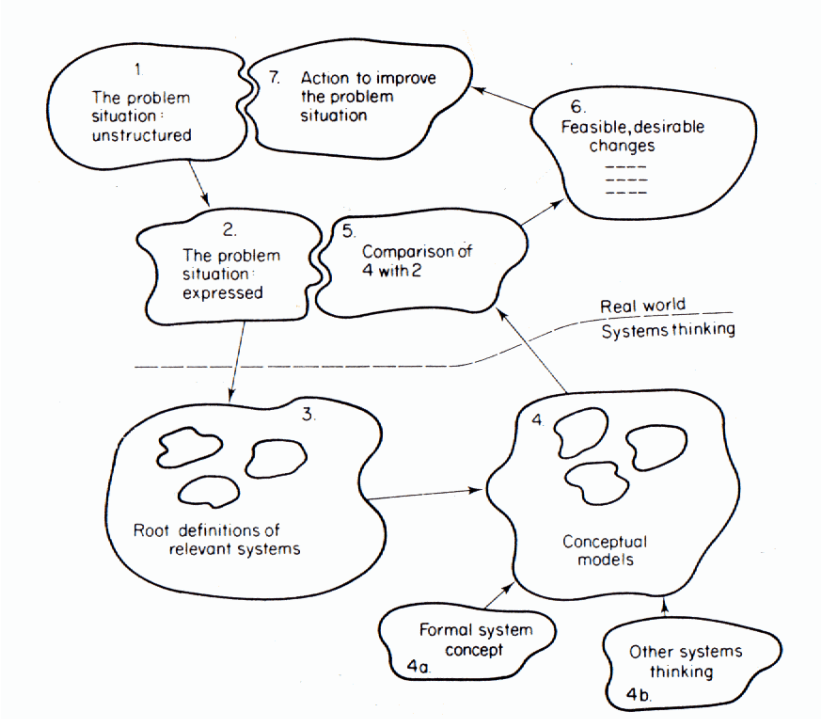

Figure 6. The methodology in summary (after Checkland, 1975).

Figure 2 the Main steps of SSM.

Stage 6 'Define Desirable and Feasible Changes'

The purpose of stage 6 is to define possible changes that are arguably *desirable* and *feasible* having regard to the situation under examination and given the prevailing attitudes and power structures. This should be done as a debate among concerned participants. The changes can be of three kinds: procedural changes (how activities are done within the structure), structural changes (organisational groupings, responsibility); or attitudes (changes of influence, learning, values and norms). These are listed from, generally speaking, least to most difficult (Checkland 1999).

Stage 7 'Action to Improve the Problem Situation'

In stage 7, action is taken to improve the problem situation based on the results of stage 6. The end product of this stage is a new problem situation that can again be tackled using the methodology in a cyclical fashion (Checkland 1999).

3.1.1.3 Selecting Relevant Systems/Activities

No human activity system is *intrinsically* relevant to any problem situation, the choice are always subjective. We have to make some choices, see where the logical implications of those choices take us, and so learn our way to truly 'relevant systems'. In the early years of SSM development much energy was wasted in trying at the start to make the best possible choices. (This was at least was better than the very earliest attempts to name *the* relevant system, in the singular!) Users of SSM have to accept this initial dousing in subjectivity, and though this is never a problem for those whose inclinations are towards the arts and humanities, it can be difficult for numerate scientists and engineers whose training has not always prepared them for the mixed drama, tragedy and face of the social process (Checkland .P and Scholes.J, 1990).

Two kinds of choice of relevant systems can be made (checkland and Wilson, 1980).In many cases there will be visible in the real world some organized purposeful action which could be reflected in the choice of a notional human activity system whose boundary would coincide with the real world manifestation. This is the kind of choice with which unreflecting hard system thinkers are comfortable. In SSM this kind of choice is referred to as a 'primary-task system' (Checkland .P and Scholes.J, 1990). This type of root definition is known as Primary task root definitions which tend to refer to officially declared tasks in the organization and to give rise to models that map existing organizational structures. (Michael C. Jackson).

But in any organization undertaking a portfolio of different tasks, there will always be debate about its core purposes and about the fraction of resources which should be devoted to each. From this consideration we could make the second kind of choice of relevant system, We could name as relevant such conceptualizations as a ‘system to resolve disagreements on the resource use’ or ‘ a system to define information flows to and find the management committee’. Here we would not necessarily expect to find institutionalized versions of such systems in the real world. In SSM these are called ‘issue-based relevant systems’; in general their boundaries would not map on to real-world organization boundaries (Checkland .P and Scholes.J, 1990).In short, this type of root definition which is known as Issue-based root definitions /models refer to current matters of concern, perhaps the need to be more innovative or to resolve a conflictual situation, that cross established boundaries (Michael C. Jackson).

Experientially it has been found important to make choices both ‘primary task’ and ‘issue-based’ systems if the thinking in the study is to be of the mind-opening variety.

The distinction between primary task and issue-based task relevant systems is not sharp or absolute; rather these are the ends of a spectrum. At the extremes, primary task systems map on to institutionalized arrangements; issue- based systems, on the other hand, relevant to mental processes which are not embodied in formalized real-world arrangements. (Checkland .P and Scholes.J, 1990).

Working with both kinds of relevant system frees the thinking, but perhaps because of this an initial tentativeness about choice-making is often observed. There is a fear perhaps that the initial choices made will inevitably have a blinkering effect on subsequent thinking, causing hesitation or even freezing. Helpful at such times (and not to be neglected in general) can be a conscious lifting of the thinking to the level of metaphor. (Checkland .P and Scholes.J, 1990).

3.1.1.4 Naming Relevant Systems/Activities

In the development of SSM it was quickly found necessary to pay close attention to the formulation of the names of relevant systems. These had to be written in such a way that they made it possible to build a model of the system named. The names themselves became known as

“Root Definitions” since they express the core or essence of the perception to be modeled. (Checkland .P and Scholes.J, 1990).Root definitions are used to explore the possibilities available for change in the problem situation given its history, culture and politics. To ensure the exploration is thorough, or ‘holistic’, it is always necessary to consider a number of different root definitions. It is also useful to take forward the two types of root definitions: Primary task and Issue-based root definitions.

A root definition expresses the core purpose of purposeful activity system. That core purpose is always expressed as a transformation process in which some entity, the ‘Input’, is changed, or transformed, into some new form of that same entity, the ‘Input’. Actions do not get transformed into anything; they may lead to conclusions or other actions, but 'lead to’ to is different concept from ‘are transformed into’: a casual sequence is not the same as a transformation. It is vitally important always to express inputs and outputs as entities: the concept of ‘transforming’ demands it. An Input-Output transformation is, on its own, too bald to be modeled richly, and root definitions came to be written as sentences elaborating the core transformation. (Checkland .P and Scholes.J, 1990).

Smyth and Checkland (1976) historically researched that in the system thinking part some ‘precise’ techniques have been developed, which consist of root definition, CATWOE, and Conceptual models activity systems. Root definition means, naming in a short statement, a system of purposeful activity. The formal rule for well-formulated root definition is that it should contain the elements of mnemonic word CATWOE. (Checkland .P and Scholes.J, 1990, and Brigitta.B and Grahn.A, 1996).

CATWOE is a mnemonic word that represents the terms: Customer, Actor, Transformation, Weltanschauung, Owner, and Environmental constraints. It has a central role in modeling in that it brings forth various perspectives on a problem situation as well as questions our assumptions.

CATWOE is usually used to enrich both the Root Definition and the Conceptual Model, but it can also be seen as a technique for evaluating the completeness of Root Definitions and Conceptual Models (Checkland and Scholes, 1990a;Wilson, 2001). Besides these general uses of

CATWOE there are also more specific uses. West (1995), for example, uses CATWOE not as a way to test a Root Definition for completeness but as a way "to ensure that enough information is provided in order to develop a description of some purposeful activity" (p. 153).

The elements of CATWOE are:

Customers (C): The persons that would be beneficiaries or victims of the System.

Actors (A): The person who performs the transformation process.

Transformation (T): An Input-Output process by which some entity is changed to Some new form of that same entity.

Weltanschauung (W): A worldview which makes the transformation meaningful.

Owners (O): The persons who can stop the transformation.

Environmental constraints: Elements which affect the system but which cannot be Controlled.

The core of the CATWOE is the pairing of transformation process T and the W, the Weltanschauung or worldview which makes it meaningful. For any relevant purposeful activity there will always be a number of different transformations by means of which it can be expressed, these deriving from different interpretations of its purpose. The other elements in CATWOE add the ideas that someone must undertake the purposeful activity, someone could stop it, some will be its victim or beneficiary, and that this system will take some environmental constraints as given. A root definition formulated with the attention to these elements will be rich enough to be

modelable. Each one does not have to be explicit in the definition, but if they are to be omitted that should be a conscious act (Checkland .P and Scholes.J, 1990).

3.1.1.5 Modeling Relevant Systems

Root definitions and CATWOE are the source of the purposeful Holon's known as 'human activity systems'. The modeling language is based upon verbs; the modeling process consists of assembling and structuring the minimum necessary activities to carry out the transformation in the light of the definitions of the CATWOE elements. The structuring is based upon logical contingency: 'convert raw material', for example, is contingent upon 'obtain raw material', and this dependent relationship will be shown by linking the activities with an arrow from 'obtain raw material' to 'convert raw material'. (Checkland .P and Scholes.J, 1990).

The conceptual model consists of a set of logically contingent activities which express the transformation. It is a vital importance that the formulation of these three techniques is consistent with each other, "since credibility (and participants' confidence in the process) can be diminished if some smart person in the situation points out a basic logical flaw in the model". (Checkland .P and Scholes.J, 1990).

In the coherence with the systems idea of communication and control, a monitor and control of conceptual model is necessity. The monitor and control system evaluates the activity system's performance against three, or if wider consideration seems relevant, five, measures of performance. They are normally referred to as three (or five) E's (Brigitta.B and Grahn.A, 1996):

E1 - Efficacy: Does the means work? Are these activities accomplishing the Transformation?

E2 - Efficiency: Are minimum resource used? Could the transformation be? accomplished better with different technique, e.g., is it efficient

to brush the pavement with a toothbrush?

E3- Effectiveness: Is this the right thing to do? Are we accomplishing our longer-term goals that are linked to our Weltanschauung?

E4- Ethics: Is the transformation a morally correct thing to do?

E5- Elegance: Is the transformation aesthetically pleasing?

Table 1.The Core Method of SSM.

Core method within SSM	**Possible elaborations**
Name the relevant systems, both 'primary task' and 'issue-based'	Use metaphors to examine relationships in the situation, or other aspects of the situation (Davies and Ledington, 1987)
Formulate root definitions meeting CATWOE requirements; think of the schema: a system to do X by Y in order to achieve Z.	See (b) below
Build models based on one T, '7 +/- 2' activities in an operational system, and a monitoring and control system using criteria for Efficacy, Efficiency and Effectiveness	a) Use more criteria than the '3 Es' (e.g. add Ethicality, Elegance) b) Use more complex model structures entailing several Ts in various relationships (e.g. parasite/host or syndicate) (Atkinson and Checkland, 1988)
Make the links in the model indicators of which activities are contingent upon which other activities	Develop flow versions of the model (abstract or concrete flows), or use this to decide on dependencies. (Woodburn, 1985)

These measures of performance are defined as “indicator(s)” (Checkland, 1981, p.315) which signal progress or regress in pursuing purposes or trying to achieve objectives. The measures are not explicitly stated; neither in root definition nor in CATWOE and some of them have no any clear correspondence to the situation. It is not mentioned why these particular E’s were chosen, except that the first three originate from the question “How could the system fail?” Effectiveness answers the question “are we doing the right thing?” and relates to Weltanschauung. Efficacy asks if the means work and relates to the transformation process. Both are judgments based on one interpretation in the systems thinking phase. Efficiency, on the other hand, relates to the economy of resource use. This consideration together with the remaining two, ethics and aesthetics seems to be related to something “outside” the system thinking phase. (Brigitta.B and Grahn.A, 1996).

Concerning model building, the first three 3 E’s, that is, Efficacy, Efficiency, and Effectiveness, for judging the in-principle performance of human activity system cover only the most basic idea of transformation. (Checkland .P and Scholes.J, 1990).They can be supplemented with other considerations of a broader nature if it seems appropriate in a particular field. Thus, ethics and aesthetics seem to be “picked out of the air” and could be neglected, replaced, or complemented by others of free choice (Brigitta.B and Grahn.A, 1996

3.1.2 Qualitative style research

3.1.2.1 Overview

Qualitative style research constructs reality and cultural meaning which focuses on interactive processes and events and, its key factor is authenticity. In qualitative style research, values are present and explicit where by situations are constrained. It is a thematic analysis on which few cases are written about the problematic situation or issue to be addressed. The researcher is fully involved in the problematic situation or issue. (Britha Mikkelsen, 2005)

Controversies have raged over appropriate research methods-for example, over the justification for using qualitative methods in social science research, and more recently, over the application of participatory methods. At the risk of over-generalization, qualitative methods are identified with interpretive and critical research and quantitative methods with positivism. (Britha Mikkelsen, 2005)

It has been argued that qualitative research has expanded greatly and is rapidly displacing quantitative style research in social sciences. Qualitative research spans a wide spectrum, of which nine major categories are Discourse analysis, Ethno-methodology, Phenomenology, Grounded theory, Hermeneutic research, Content analysis, Life history studies, Structural ethnography and Symbolic interactionism (Britha Mikkelsen, 2005).

3.1.2.2 Pure Qualitative Strategy: Naturalistic Inquiry, Qualitative Data Analysis

Procedures for recruiting and selecting participants for the program are determined entirely by the staff. The evaluator finds a convenient time to conduct an in-depth interview with the participants as soon as they are admitted in to the program.

During the course of the program the evaluator finds convenient opportunities for conducting additional in-depth interviews with participants to find out how they view the program, what kinds of experiences they are having, and what they are doing. Near the end of the program, in-depth interviews are conducted with the participants to find out what behaviors have changed, how they view things, and what their expectations are for the future. In depth interviews are also conducted with the program staff. These data are content analyzed to identify the patterns of experience participants bring to the program, what patterns characterize their participation in the program, and what patterns of change are reported by and observed in the participants. (Michael Quinn, 1990).

3.1.2.2.1 Organizing Data

The data generated by qualitative methods are voluminous. Sitting down to make sense out of pages of interviews and whole files of field notes can be overwhelming. Dealing with all these pieces of paper seems like an impossible task (Michael Quinn, 1990).

The first thing to do is to make sure it is all there. Are the field notes complete? Are there any parts of detailed filed notes that you put off to write later and never got to that will need to be finished, even at this late date, before beginning the analysis? Are there any glaring holes in the data that can still be filled by collecting additional data before the analysis begins? Are interview transcriptions complete? Get a sense of the data; check the quality of the information you have collected (Michael Quinn, 1990).

Once the interviewer is certain that all the data are there, has checked out the quality of the data, and has filled in any missing gaps, formal analysis can begin. For dissertations and major scholarly studies, it is prudent to make at least four complete copies of all of the data, one master copy for safekeeping and three copies for different kinds of analysis.

Indeed, if data collection has gone over any long period of time, it is wise to make copies of the data, as they are collected, being certain to put one copy in a safe place where it will not be disturbed, cannot be lost, and will not be destroyed. In any case, one complete copy of the data should be stored in a secure place. (Michael Quinn, 1990).

3.1.2.2.2 Designing Qualitative Studies

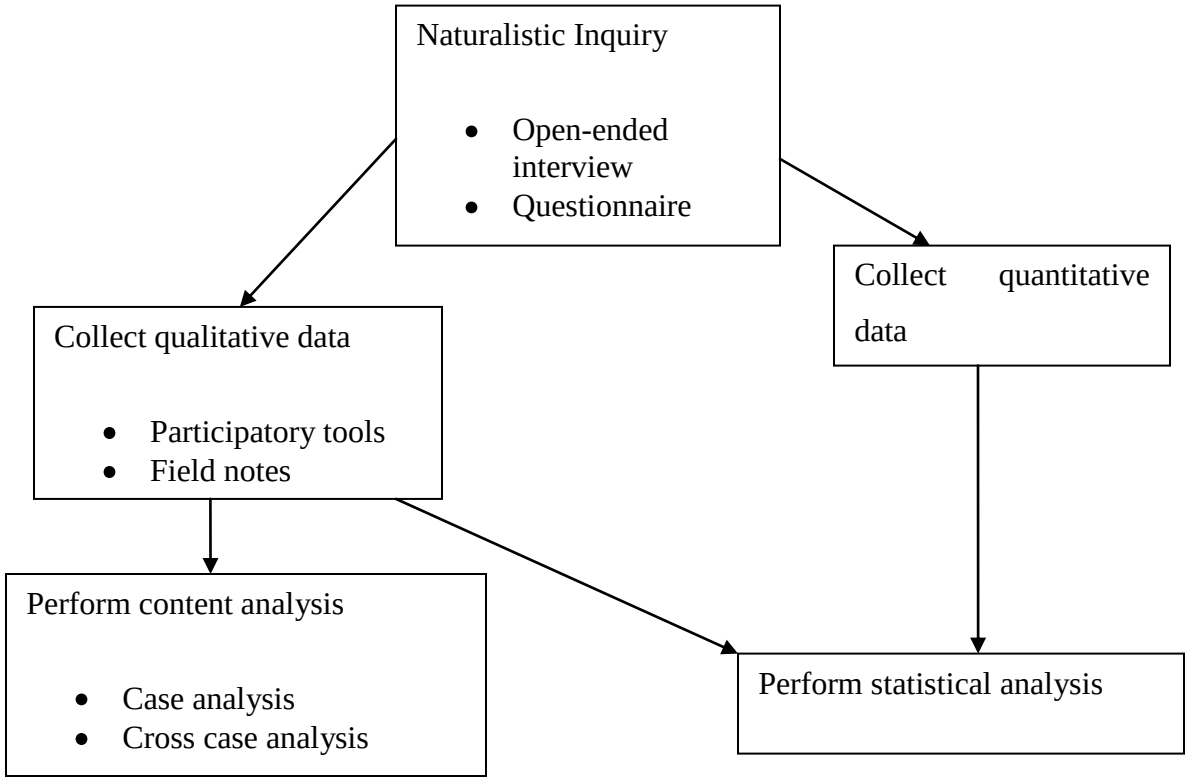

Figure 3 The Pure Holistic- Inductive Paradigm.

N: B 1. There are no rules for sample size in qualitative inquiry. Samples size depends on what you want to know, the purpose of the inquiry, what is at stake, what will be useful, what will have the credibility, and what can be done with available time and resource?

2. The validity, meaningfulness, and insights generated from qualitative inquiry have more to do with the information-richness of the cases selected and the observational/analytical capabilities of the researcher than with sample size.

Once a copy is put away for safe keeping, there remains one complete copy to use throughout the analysis, one copy for writing on, and one or more copies for cutting and pasting. A great deal of the work of qualitative analysis involves creative cutting and pasting of the data, even if done on a computer rather than by hand. It is usually best to have more than one copy for this purpose,

for under no circumstances should one yield to the temptations to begin cutting and pasting the master copy. The master copy becomes a key resource for locating materials and maintaining the context from the raw data. A master computer file will serve the same purpose (Michael Quinn, 1990).

Once copies have been made of the data, the formal analysis can begin. The analysis of qualitative data is a creative process. It is also a process demanding intellectual discipline, analytical rigor, and a great deal of hard work. Because different people manage their creativity, intellectual endeavors, and hard work in different ways, there is no right way to go about organizing, analyzing, and interpreting qualitative data (Michael Quinn, 1990).

3.1.2.2.3 Data and Data Analysis

Data and data analysis are separate dimensions but are often treated as one-for instance when quotations from interviews (which are 'data) pretend to be analysis. (Britha Mikkelsen, 2005)

The two main approaches to inquiry and analysis:

1. Inductive approach is an approach in which one begins with concrete empirical details and then works towards abstract ideas or general principles. There is often a 'bottom-up' perspective- seen from the point of view of the subjects- in the empirical analysis.
2. Deductive approach is an approach in which one begins with abstract ideas (e.g., hypothesis) and then collects concrete, empirical details to test the ideas. One's point of departure in theory or hypothesis is made explicit (Britha Mikkelsen, 2005).

3.1.2.2.4 Focusing Analysis

3.1.2.2.4.1 Strategies for analyzing Interview

The first decision to be made in analyzing interviews is whether to begin with *case analysis or cross-case analysis*. Beginning with the case analysis means writing a case study for each person interviewed or each unit studied(E.g. each critical event, each group, and so on).Beginning with

the cross-case analysis means grouping together answers from different people to common questions or analyzing different perspectives on central issues (Michael Quinn, 1990).

If a standard open-ended interview is used, it is fairly easy to do *cross-case or cross-interview analysis* for each question in the interview. With interview guide approach, answers from different people can be grouped by topics from the guide, but the relevant data won't be found in the same place in each interview. The interview guide actually constitutes a descriptive analytical framework for analysis. It is appropriate to begin with the individual case studies where variations in individuals are the primary focus of the study. This strategy requires writing a case analysis using all the data for each person before doing cross-case analysis (Michael Quinn, 1990).

These two strategies are by no means mutually exclusive. A study will often include both kinds of analysis, but kinds of analysis, but one has to begin somewhere trying to do both individual case studies and cross-case analysis by issue at the same time will likely lead to confusion (Michael Quinn, 1990).

3.1.2.2.4.2 Content Analysis

Content analysis is the process of identifying, coding, and categorizing the primary patterns in the data. This means analyzing the content of interviews and observations (Michael Quinn, 1990).

Steps in content analysis:

1. Theory and circumstances suggest the selection of particular texts.
2. Sample texts if there are too many to analyze completely.
3. Construct a coding frame that fits both the theoretical consideration and the materials.
4. Pilot and revise the coding frame and explicitly define the coding rules.
5. Test the reliability of the codes, and sensitize coders to ambiguities.
6. Code all materials in the sample, and establish the overall reliability of the process.
7. Set up a data file for the purpose of statistical analysis.

8. Write a codebook including (a) the rationale of coding frame; (b) the frequency distributions of all codes; (c) the reliability of the coding process.

Conducting a content analysis, whether manually, or by computer-aided techniques, involves a number of steps: sampling of text, categorizing and coding, analysis, and validation. (Britha Mikkelsen, 2005).

3.1.2.3 Case Studies

The desire to evaluate individualized client outcomes is one major reason why case studies may be conducted. There are other reasons case studies may be preferred or needed. Sometimes researchers or policy makers are puzzled by particular cases-unusual successes, unusual failures, or dropouts. Detailed case studies of these unusual cases may generate particularly useful information. The emergence of case management as a primary mechanism for coordinating services in welfare and other human services is an example of a program approach in which case study evaluations would be highly appropriate. In other institutions, a case study approach may be indicated by the critical nature of one or a few cases. The need for case data may be present whether the unit of analysis is an individual, program, organization, or community (Michael Quinn, 1990).

The purpose of classifying qualitative data for content analysis is to facilitate the search for patterns and themes within a particular setting or across cases. Certain kinds of evaluation questions, however, are best answered through case analysis. Case analysis involves organizing the data by specific cases for in-depth study. Cases can be individuals, programs, institutions, or groups (Michael Quinn, 1990).

The case study approach to qualitative analysis is a specific way of collecting, organizing, and analyzing data. The purpose is to gather comprehensive, systematic, and in-depth information about each case of interest. The starting point for case analysis, then, is making sure that the information for each case is as complete as possible.

The qualitative study of a single program may be a case study. Within that single-program case study, one may do case studies of several participants. In such an approach, the analysis would

begin with individual case studies, and then cross-case pattern analysis of the individual cases would be a major part of the data for the program case study (Michael Quinn, 1990).

Case data consist of all the information one has about each case. Each case analysis includes all the interview data, the observational data, documentary data, impressions, and statements of others about the case, and data over time- in effect, all the information one has accumulated about each particular case goes into that case study. These are the raw data for case analysis, and they can amount to a large accumulation of information.

3.1.2.3.1 The content of Case Studies

Once the raw case data have been accumulated, the researcher may write a case record. The case record pulls together and organizes the voluminous case data into a comprehensive, primary resource package. The case record includes all the major information that will be used in doing the final case analysis and case study. Information is edited, redundancies are sorted out, parts are fitted together, and the case record is organized for ready access either chronologically and /or topically. The case record must be complete but manageable; it should include all the information needed for subsequent analysis, but it is organized at a level beyond that of the raw case data (Michael Quinn, 1990). The case record is used to construct a case study. The case study includes the information that will be communicated in the final report; it represents the descriptive data presentation in the report. The report may consist of several case studies that are then compared and contrasted, but the basic descriptive data of the study are the cases. The case study should take the reader into the case situation, a person's life, a group's life, or a program's life. Each case study in a report stands alone, allowing the reader to understand the case as a unique, holistic entity. At a later point in analysis it is possible to compare and contrast cases, but initially each case must be represented and understood as an idiosyncratic manifestation of the phenomenon of interest.

Table 2. The Process of Constructing Case Studies.

STEP ONE	*Assemble the raw data.* These data consist of all the information collected about the person or program for which a case study is to be written.
STEP TWO **(OPTIONAL)**	*Construct a case record.* This is a condensation of the raw case data organizing, classifying, and editing the raw case data into a manageable and accessible package.
STEP THREE	*Write a case study narrative.* The case study is a readable, descriptive picture of a person or program making accessible to the reader all the information necessary to understand that person or program. The case study is presented either chronologically or thematically (sometimes both).The case study presents a holistic portrayal of a person or program.

The descriptions of the case should be holistic and comprehensive, given the focus of evaluation, and will include myriad dimensions, factors, variables, and categories woven together into an idiographic framework (Michael Quinn, 1990).

3.1.2.4 Sampling Strategies

One of the critical and controversial areas in the sound use of qualitative and participatory methods is selection of respondents and sampling. It does not pose the same problem in conventional survey methodology, since a range of sampling techniques has been developed to suit different research purposes.(Conducting a content analysis, whether manually, or by computer-aided techniques, involves a number of steps: sampling of text, categorizing and coding, analysis, and validation. (Britha Mikkelsen, 2005).

3.1.2.4.1 Purposive (Purposeful) Sampling

Perhaps nothing better captures the difference between quantitative and qualitative methods than the different logics that undergird sampling approaches. Qualitative inquiry typically focuses in depth on relatively small samples, even single cases (n=1), selected purposefully. Quantitative methods typically depend on larger samples selected randomly. Not only are the techniques from sampling different, but the very logic of each approach is unique because the purpose of each strategy is different. (Britha Mikkelsen, 2005, Michael Quinn, 1990).

The logic and power of purposeful sampling lies in selecting information-rich cases for study in depth. Information-rich cases are those from which one can learn a great deal about issues of central importance to the purpose of the research, thus the term purposeful sampling. The purpose of purposeful sampling is to select information-rich cases whose study will illuminate the question under study (Michael Quinn, 1990).

3.1.2.4.1.1 Maximum Variation Purposeful Sampling Strategy

This strategy for purposeful sampling aims at capturing and describing the central themes or principal outcomes that cut across a great deal of participant or program variation. For small samples a great deal of heterogeneity can be a problem because individual cases are so different from each other. The maximum variation sampling strategy turns apparent weakness into strength by applying the following logic: Any common patterns that emerge from the great variation are of particular interest and value in capturing the core experiences and central, shared aspects or impacts of a program (Michael Quinn, 1990).

How does one maximize variation in a small sample? One begins by identifying diverse characteristics or criteria for constructing the sample. When selecting a small sample of great diversity, the data collection and analysis will yield two kinds of findings: 1) high-quality, detailed descriptions of each case, which are useful for documenting uniqueness, and 2) important shared patterns that cut across cases and derive their significance from having emerged out of heterogeneity (Michael Quinn, 1990).

3.1.2.5. Interviews – a Key Source of Data

3.1.2.5.1 Qualitative and Semi-Structured Interviews

Interviewing is the practitioner's method 'par excellence' in development studies-qualitative interviews in particular. Interviews generate information (data). (Britha Mikkelsen, 2005)

The purpose of interviewing is to find out what is in and on someone else's mind. The purpose of open ended interviewing is not to put things in someone's mind (for example, the interviewer's preconceived categories for organizing the world) but to access the perspective of the person being interviewed We interview people to find out from them those things we cannot directly observe. The issue is not whether observational data is more desirable, valid, or meaningful than self-report data. The fact of the matter is that we cannot observe everything. We can observe feelings, thoughts, and intentions. We cannot observe behaviours that took place at some previous point time. We cannot observe situations that preclude the presence of an observer. We cannot observe how people have organized the world and the meanings they attach to what goes on in the world. We have to ask people questions about those things. The purpose of interviewing, then, is to allow us to enter into the other person's perspective. Qualitative interviewing begins with the assumption that perspective of others is meaningful, knowable, and able to be made explicit. Interviews are undertaken with individuals or groups (Britha Mikkelsen, 2005).

Participatory methods have contributed to adjust the interview to make it more conversational, while still controlled and structured. In qualitative interviews only some of the questions and topics are predetermined. Many questions will be formulated during the interview. Questions may be asked according to a flexible checklist or guide, and not from a formal questionnaire. This is the semi structured interview. The qualitative, semi-structured interview has in particular been widely used in social research, not least due to Kavel's (1996) thorough treatment of both the theoretical underpinnings and practical aspects of the interview process (Britha Mikkelsen, 2005).

There are three basic approaches to collecting qualitative data through open-ended interviews. The three approaches involve different types of preparation, conceptualization, and instrumentation. Each approach has strengths and weaknesses, and each serves a somewhat different purpose. The three choices are these:

1. the informal conversational interview,
2. the general interview guide approach, and
3. The standardized open-ended interview.

These three approaches to the design of the interview differ in the extent to which interview questions are determined and standardized before the interview occurs.

3.1.2.5.1.1 The Standardized Open-Ended Interview

It consists of a set of questions carefully worded and arranged with the intention of taking each respondent through the same sequence and asking each respondent the same questions with the essentially the same words. Flexibility in probing is more or less limited, depending on the nature of the interview and the skills of interviewers. The standardized open-ended interview is used when it is important to minimize variation in the questions posed to the interviewees. This reduces the possibility of bias that comes from having different interviews for different people, including the problem of obtaining more comprehensive data from certain persons while getting less systematic information from others.

A Standardized open-ended interview may be particularly appropriate when a large number of people are to conduct interviews on the same topic and the evaluator wishes to reduce the variation in responses due to the fact that, left to themselves, different interviewers will ask questions on a single topic in different ways. By controlling and standardizing the open-ended interview, the evaluator obtains data that are systematic and thorough for each respondent but the process reduces flexibility and spontaneity.

3.1.3 Participatory Rural Appraisal

3.1.3.1 Definition and Concept

Participatory Rural Appraisal is a short-cut method of data collection. It is methodology for action research and utilizes a range of techniques. It involves local people and outsiders from different sectors and disciplines. Outsiders facilitate local people in analyzing information, practicing critical self-awareness, taking responsibility and sharing their knowledge of life and conditions to plan and to act (Bishnu B. Bhandari, 2003).

PRA grew out of biases of rural development tourism- the phenomenon of the brief rural visit by the urban-based professionals- of the costs, inaccuracies and delays of large scale questionnaire surveys. PRA provides the middle path of greater cost effectiveness between rural development tourism researches (quick-and-dirty) and the traditional of academic research (lengthy-and-boring) (Bishnu B. Bhandari, 2003)

3.1.3.2 Principles and Unique Features of PRA

Different practitioners would find different principles but most would agree to include the following (Bishnu B. Bhandari, 2003):

- Using optimal ignorance
- Offsetting biases
- Triangulation
- Learning from and with rural people
- Learning rapidly and progressively

PRA has the following unique features (Bishnu B. Bhandari, 2003):

- Interactive
- Innovative
- Informal
- Community based (perspectives)

3.1.3.3 The Catalogue of PRA Methods, Techniques and Tools

One implication of the overruling principle of PRA, 'Use your own best judgment at all times', is invention. Participatory assessments ad activities are methods for creating dialogue and for collecting information. They are characterized by ingenuity and flexibility. Which method to apply depends on the specific context? The paradox is that if PRAs are rigidly done according to fixed formulas, the whole idea of the exercise is jeopardized (Britha Mikkelsen, 1995).

No two PRA situations are the same as the people who participate; their problems and ideas, the cultural contexts and the questions that are addressed differ. The techniques and tools of PRA include well-established social science research methods, but more importantly, a set of communication and participatory data collection techniques (Britha Mikkelsen, 1995).

A considerable set of techniques and tools have been invented and tried out to investigate and analyze complex problems that, for example, involve distribution of access, resources and power. PRA techniques have proved to be of much use in diagnosing specific problems and highlighting possible solutions (Britha Mikkelsen, 1995).

The Catalogue of Selected PRA methods, techniques and tools used for participatory data collection, data analysis and communication techniques in PRA are as follows (Britha Mikkelsen, 1995, Bishnu B. Bhandari, 2003): .

1. **Secondary data reviews:** books, files, reports, news, articles, maps, etc.
2. **Observation:** direct and participant observation, wandering, DIY (do-it-yourself) activities.
3. **Semi-structured interviews:** this is an informal, guided interview session, where only some of the questions are pre-determined and new questions (probing) arise during the interview, in response to answers from those interviewed. The interviews may be 1) individual farmers or households, 2) key informants, 3) group interview, 4) community meeting, 5) chains (sequences) of interviews. The interview is conducted by a multi-disciplinary team of 2-4 persons and the discussion is lead by different

people in different occasions. In Semi-Structured interviews (SSI) questions are open-ended.

4. **Analytical game/Ranking and Scoring:** this is a quick game to find out a group's list of priorities, performances, ranking, scoring, or stratification. E.g. Pair wise ranking, Matrix scoring and ranking, Scoring and ranking of options, Well being or Wealth ranking, Problem, preference and opportunity ranking, etc
5. **Stories and portraits:** colorful description of situation, local history, trend analysis, etc.
6. **Diagrams/Diagramming:** maps, aerial photos, transects, seasonal calendars, Venn diagram, flow diagram, historical profiles, ethno-history, time lines, casual, linkage and flow diagramming, etc.
7. **Workshops, Scenarios and Possible futures:** locals and outsiders are brought together to discuss the information and ideas intensively. E.g. Consensus, conference and hearings.
8. **Case studies and stories:** Life histories, oral or written stories by key people. E.g. school children.
9. **Drama, games and role play**
10. **Triangulation**: Data triangulation, investigator triangulation, Discipline triangulation, Theory triangulation and Methodological Triangulation.
11. **Continuous analysis and reporting**: With or without software for analysis of quantitative and qualitative data.
12. **Participatory planning, budgeting, monitoring, evaluation and self surveys**: participate in all project cycle activities
13. **Do-it-yourself**: outsiders being taught by insiders.

The PRA methods included in the 'catalogue' are neither exclusive nor discrete and several methods can be applied in the same study or project.

PRA methods serve several purposes. There are PRA methods for (*i*) collecting data and information, (*ii)* analyzing information, (*iii)* both collecting and analyzing data, e.g. diagrams, and (*iv)* communication (Britha Mikkelsen, 2005).

3.1.3.3.1 Diagramming

Participatory diagramming is used for (i) summarizing empirical information, for example, in time lines as well as for (ii) summarizing analyzed information, for example in bar charts and pie charts. The idea is to let people make their own diagrams. They are more likely to use other measures than the outsider. (Britha Mikkelsen, 2005)

3.1.3.3.1.1 Force Field Analysis

It is a simple visual technique used to identify and analyze on the one side 'driving forces', and on the other side 'restraining forces' which affect a problem or situation (e.g. gender equality). (Britha Mikkelsen, 2005)

3.1.3.3.1.1.2 Venn diagrams

Sometimes it is called chapatti diagrams after the Indian pancake-shaped bread, place circles of different sizes in symbolic relationships to each other. Venn diagrams are used to depict the participants' sense of relations between local groups or organizations. The size of the chapattis symbolizes the different weights allocated to the groups or organizations by the participants. (Britha Mikkelsen, 2005)

3.1.3.3.2 Workshops, Scenarios and Possible Futures

Workshops have become a most favored method of communication with different 'stakeholders', for collecting data, and sometimes for jointly analyzing data.

A useful package for facilitation of workshops, including self-adhesive cards of different shapes and colours, posters, sticky cloth, etc., called PARTICIPLAN (Britha Mikkelsen, 2005).

3.1.3.3.2.1 SWOT Analysis (Strengths, Weaknesses, Opportunities and Threats)

It originates in organizational analysis but can easily be adjusted to suit other purposes. SWOT is a useful way to elicit participants ideas retrospectively on what have been the strengths and

weaknesses of an intervention, a learning process, etc., and for indentifying priorities (opportunities) with due consideration to threats (controllable or un-controllable conditions) in a given context. Writing statements on cards and sorting these under common denominators can be very participative and entertaining. Simpler and adjusted SWOT approaches, e.g., with only strengths or weaknesses registered on flip-charts, are common. SWOT can be used for planning as well as in evaluations (Britha Mikkelsen, 2005).

3.1.3.4 Analyzing PRA Data

1. It is difficult to suggest a technique of analyzing the data and information in PRA as qualitative as well as qualitative methods, are employed. Each technique has its own method of analysis.
2. The analysis should be kept simple; it should be related to the purpose and scope of the study. If complex data are to be used, then every effort should be made to present the findings in non-technical language. Data and information should be arranged according to category, issue, topic, sub-topic or question (Bishnu B. Bhandari, 2003).

3.1.3.5 The concept of Stakeholder and stakeholder participation

3.1.3.5.1 Stakeholder/s

Generally, stakeholders can be defined as those who are affected by the outcome of a decision or who can affect this outcome, either negatively or positively. Literally, a stakeholder is an individual who has a stake in a certain issue or decision. In practice, (socially) organized groups or individuals that perceive themselves as being affected by a decision, that share common values and preferences, or that have an interest regarding the decision at stake, are also considered as stakeholders (Mostert, 2003; van de Kerkhof, 2004). Usually, only these organized interests groups are involved in stakeholder participation. Consequently, both individuals and (organized) groups can act as stakeholders. Their stakes may not always be clear; they may contradict and may change over time

Types of stakeholders

Primary stakeholders are those who will be directly or ultimately affected by an intervention, either positively (beneficiaries) negatively.

Secondary stakeholders are intermediaries such as implementing organizations, or other individuals, persons, groups or institutions involved in interventions, including funders.

Key stakeholders are those of the primary and secondary stakeholders who can significantly affect influence an intervention either positively or negatively during its course, and who will share responsibility, quality and sustainability of subsequent effects and impact (Britha Mikkelsen, 1995).

3.1.3.5.2 Stakeholder participation

Stakeholder participation is an instrument that provides stakeholders the opportunity to participate in decision-making and potentially influence projects or policies. Stakeholder participation is more than involvement only. It implies a certain level of joint responsibility and/or empowerment of the stakeholders in the decision-making. Consequently, stakeholder participation can best be defined as 'the act of empowering stakeholders in decision-making on issues they have a stake in'.

Stakeholder participation is different from 'public' or 'citizen' participation, which implies more indirect involvement in decision-making. It means that the public (or citizens) has the right of judicial access, and the right of access to information on decisions. Hence, by use of public participation the decision-making becomes more transparent and accountable, but the public has no influence on the decision.

Stakeholder participation is considered as required in order to achieve sustainable management from economic, environmental as well as from a social point of view. Hence, the ultimate aim of applying stakeholder participation is to produce well informed management, with good chances of implementation. It is based on the idea that both decision-makers and stakeholders benefit from communication between them. The stakeholders will understand the relevance and need of the problem, project or policy, and can contribute to ideas and solutions. Decision makers, on the

other hand, profit from new ideas, etc. Hence, stakeholder participation is expected to improve the quality, efficiency, effectiveness and sustainability of projects and to increase the capacities, self-reliance and empowerment of stakeholders. Benefits and strengths of stakeholder involvement include (OAS 2001):

-It can lead to improved decision-making as stakeholders often possess a wealth of information and it can increase the legitimacy, transparency, and accountability of decisions;

-Communication and consensus at early stages of the project can reduce the likelihood of conflicts, which can harm the implementation and success of the project;

-Stakeholder involvement contributes to the transparency of public and private actions, as these actions are monitored by the different stakeholders that are involved;

-The involvement of stakeholders can build trust between the government and civil society, which can possibly lead to long-term collaborative relationships. People should have a say in decisions that affect their lives. Moreover, the stakeholders often are the source of the problem at stake, are the best judges of their own interests and the level of risk they are willing to accept, and they are more sensitive to social and political values than experts are (Fiorino, 1990);

Summarizing, applying stakeholder participation is beneficial because it can result in better-informed and more creative decision-making, a greater public acceptance of decisions, more transparency and better communication, leading to a more effective and more democratic decision or policy, with better chances of implementation.(Fiorino, 1990)

Levels of Stakeholder Participation

Several levels of stakeholder participation can be distinguished, which differ in the level of involvement of stakeholders in the decision-making process. The levels vary from no participation at all to full and independent decision-making. The following four levels can be differentiated (OAS, 2001):

Information sharing – This relates to informing the stakeholders of a project, the project goals and project objectives. The stakeholders have knowledge about decisions but are not involved in determining the goals and objectives of a project.

Informing stakeholders can be done by a variety of ways. News and information about the project can be transmitted through radio, TV or newspapers if access to mass media in the

particular area is good. Otherwise, posters or leaflets may be prepared and distributed in areas where the stakeholders are likely to be.

Consultation – This involves the stakeholders in discussions on the goals and objectives of the project and on the design and implementation of the project. These stakeholders may experience impacts from decisions relating to the project and as such need to be consulted and heard before decisions are being made. The stakeholder representatives consulted in the project should be given the opportunity to voice their concerns and should be regularly informed of the progress of the project. This can be done by sending progress reports or by inviting stakeholder representatives to project meetings.

Collaboration – Collaboration implies having influence on decisions by the identified stakeholder. This means that the stakeholders are involved in decision making relating to the project's goals, objectives and design. Possibly representatives from the stakeholders are included in the project team in order to strengthen the partnership.

Empowerment or Ownership – The most far-reaching form of stakeholder participation involves transferring control of decision-making powers and resources to the stakeholders. In this process stakeholders form and agree to decisions.

The above level can be found in a framework developed by the FAO (1995). This framework presents four different levels of stakeholder participation, and some examples of related techniques (see Figure 5). At the lowest level of this framework, stakeholders are provided with 'knowledge about decisions', by public information, public hearings, or conferences. At a higher level, stakeholders are 'heard before decisions', through advisory groups and workshops. One-step further, stakeholders 'have an influence on decisions', by use of collaborative problem solving and assisted negotiation. Finally, at the highest level structured techniques like conciliation/mediation and joint decision-making are used, in order to achieve consensus, agreement and resolution.

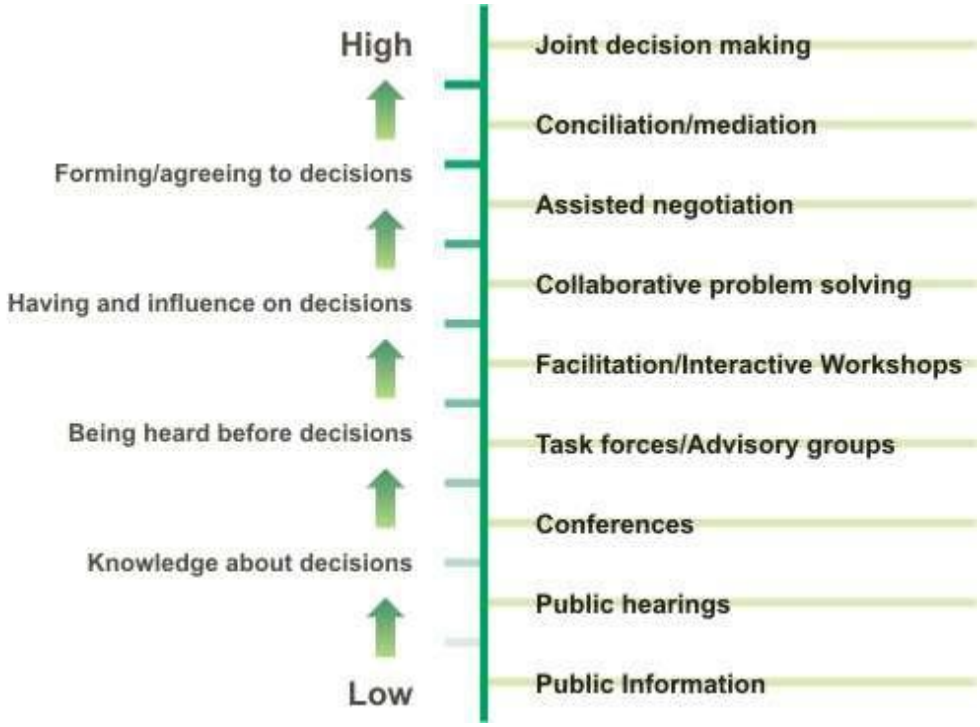

Figure 4 The degree of stakeholders' involvement and methods for involvement (FAO, 1995).

Approaches for stakeholder participation

As a rule of thumb, the appropriate approaches for involving stakeholders of differing levels of influence and importance can be as follows:

Stakeholders of high influence and high importance should be closely involved throughout the preparation and implementation of the project to ensure their support for the project.

Stakeholders of high influence but low importance are not the target of the project but could possibly oppose the project that you propose. Therefore, you would want to keep them informed and acknowledge their views on the project in order to avoid disruption or hindrance of the project's preparation and implementation.

Stakeholders of low influence and high importance require special efforts to ensure that their needs are met and that their participation is meaningful.

Stakeholders of low influence and low importance are unlikely to be closely involved in the project and require no special participation strategies (beyond information sharing to the general public).

3.1.3.5.3 Stakeholder Analysis and its Importance

Stakeholder analysis refers to a range of tools for the identification and description of stakeholders, their interrelationships, current and (potential) future interests and objectives (R. Ramirez, 1999) and examines the question of how and to what extent they represent various segments of society.

More concretely, stakeholder analysis can be defined as: An approach and procedure for gaining understanding of a system by means of identifying the key actors and stakeholders in the system and assessing their respective interests in that system ((Pomeroy.R and Douvere. F, 2008).

The use of stakeholder analysis originated in the management sciences. It has now evolved into a field that incorporates economics, political science, game and decision theory and environmental science (World Bank 2006) .Stakeholder analysis is also a central theme in conflict management. Stakeholder analysis seeks to differentiate and study stakeholders. Stakeholder groups can be divided into smaller and smaller sub-groups depending upon the particular purpose of stakeholder analysis. The identification of key stakeholders should be inclusive and detailed. More groups may mean more problems and discussion, but excluding certain groups could lead to problems in the long run. Ultimately, every individual is a stakeholder, but that level of detail is rarely required. A key question to be answered in the MSP process is: who are the stakeholders that are entitled to take part in discussions and in management? Seven major attributes are important for stakeholder analysis in natural resource management (Pomeroy.R and Douvere. F, 2008).

3.1.3.7 Problem Analysis in the Logical Framework Approach

It is now widely accepted that top-down identification of development problems is one of the basic causes when development projects fail. Yet the world sometime seem to continue more or

less unaffected by such observations, with donors and governments continuing to define where, for whom , and by what means to intervene in development (Britha Mikkelsen, 1995).

A set of tools for problem analysis has been developed which ensures that, in theory, two fundamental requirements can be fulfilled:

1. A minimum degree of consensus between the stakeholders over what the basic problem to be addressed is.
2. The problem is formulated in such a way that it can be addressed by specified interventions- i.e. the problem is analyzed in its entirety, specifying causes and effects. (Britha Mikkelsen, 1995).

The tools are contained in the logical framework approach, of which problem analysis is itself one of the steps.

The Logical Framework consists of seven steps which enhance planning, analysis and communication (Britha Mikkelsen, 1995).

Four steps concentrate on analysis, three steps on design:

Analyzing the situation

Step 1: Participation analysis

Step 2: Problem analysis

Step 3: Objective analysis

Step 4: Alternatives analysis/Strategy formulation

Designing the project

Step 5: Identification of project elements

Step 6: Identification of external factors

Step 7: Identification of indictors

To go through all these steps-first identifying the most direct and essential causal relationships, followed by three planning steps of project design is major task. It is during step-by-step exercise, sometimes called the LFA workshop that the participants reach a common understanding of the problem to be addressed, how and under what constraints. Unfortunately, as Birgegård (1991) shows, this important process is all too often largely carried out by external people, donor representatives and consultants (Britha Mikkelsen, 1995).

Problems must be formulated in a particular way in order to be 'researchable' or for action to be taken up on them. A problem is not the absence of a solution but an existing negative state! Cards can be used for building elements of a problem tree (Britha Mikkelsen, 1995).

3.1.3.7.1 Problem Analysis

The formal requirements for of the definition of a problem extend to identification of the cause-effect relationship. The focal or core problem is placed at the centre. The substantial and direct causes of the core problems are placed underneath it in parallel, and the direct effects above the core problem (Britha Mikkelsen, 1995).

Formulate Problems:

1. Identify existing problems, not possible, imagined or future ones.
2. A problem is not the absence of a solution, but an existing negative state.
3. Only one problem per card.

3.1.3.7.2 Objective (Solution) Analysis

It is similar to problem analysis. The formal requirements for the definition of a problem solution (objective of an issue) extend to the identification of the means-end (ways and benefits) relationship. (Britha Mikkelsen, 1995).

The preparation of the problem tree has several purposes:

1. It clarifies for the participants what they themselves think are the main cause-effect relationships characterizing the problem.
2. In the objectives analysis, the problem tree is transformed in to a tree of objectives (future solutions of the problems) and analyzed. The problems are reformulated as positive statements.
3. The problem tree, constructed on the basis of brainstorming and card sorting, given a picture of the complexity of problems (Britha Mikkelsen, 1995).

3.1.4 Communication

Communication enables us to meaningfully relate ourselves with others, exchange our ideas, share our thoughts, impart and gain knowledge, and build further on the basis of accomplishments of our past generations. No organized activity is possible without communication among those engaged in cooperative effort, and between them and their environment. (Agarwal.R.D, 1995)

3.1.4.1 Meaning and Importance of communication

The word communication has been derived from the Latin word communes, meaning "common". A communicator seeks to establish "commonness" with his receivers. In the views of Newman, et al, communication occurs when the receiver receives the same intellectual and emotive message which the sender sends. It is not necessary for communication to take place that the receiver agrees with the intellectual message of the sender or responds to his emotional feelings. All that is required for communication to occur is that the receiver understands the intellectual message and emotional feelings of the sender in the same sense as intended by him. Communication is any interchange of ideas, information, feelings and emotions among two or more persons in a way that they share a common understanding about it. Effective communication, however, implies that the receiver should not only understand the message sent by the communicator but also accept and comply with it (Agarwal.R.D, 1995).

Communication is one of the most central aspects of all managerial activities. Whatever a manager does, he does it by communicating with others. As a manager, your responsibility is to get things done through people. However, sound your ideas or well reasoned your decisions, they become effective only as they are transmitted to others and achieve the desired action or reaction. Communication therefore, is your vital management tool. Effectiveness of a manager indeed depends significantly on his ability to communicate effectively with his superiors, subordinates, peers and external agencies such as customers, bankers, suppliers, union, government, and so forth.

Communication is also a central tool for achieving coordination and control. Feedback on his subordinates' performance enables him to measure the results with pre-determined standards, and take corrective action. The corrective action must again be communicated to them in order to enable them to improve their performance (Agarwal.R.D, 1995).

3.1.4.2 Process of communication

Process of communication involves: i) sender – ideas, information, etc., ii) encoding, iii) message, iv) medium – the carrier of the message, v) receiver, Vi) decoding – interpreting the meaning, purpose and intent, vii) receipt of message, and viii) feedback from the receiver to the sender about the result of communication.

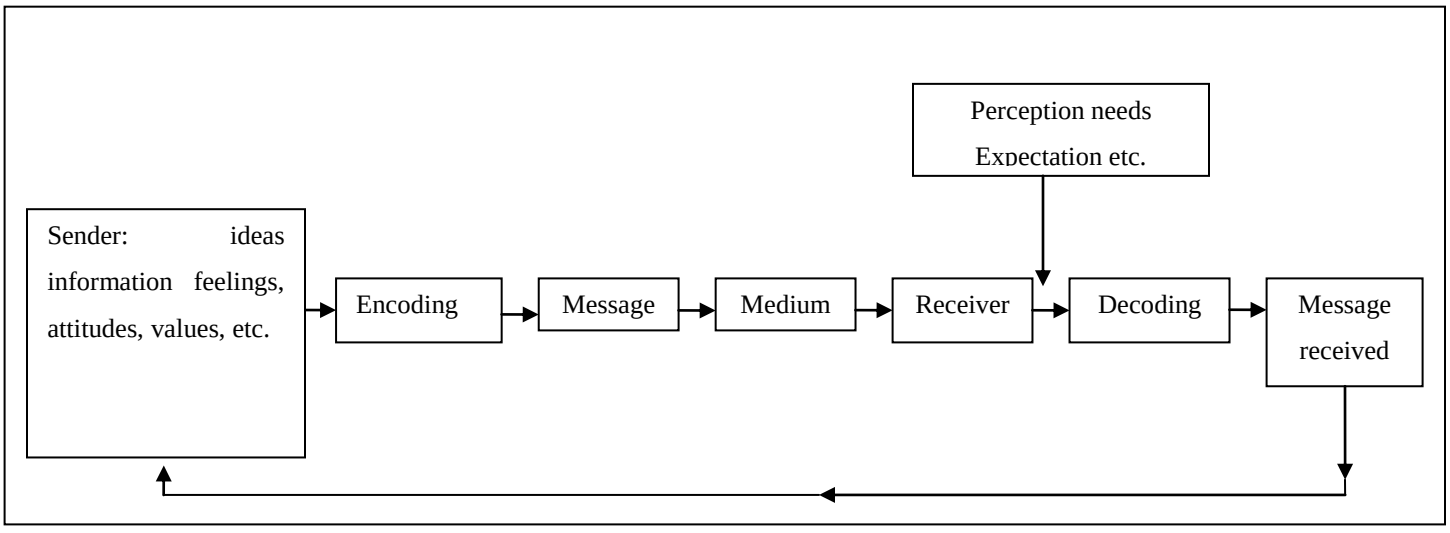

Figure 5. Communication Process (Agarwal 1995).

3.1.4.3 Channels of communication

Formal communication channels are provided by the organizational structure. Besides formal channels, communication also flows through informal channels among members of informal groups. Formal communication channels are mainly vertical-downward and upward, horizontal and diagonal (Agarwal.R.D, 1995).

1. Downward communication flows from employees at higher levels in organizational hierarchy to those at relatively lower levels. It typically refers to superior-subordinate communication. Elements of downward communication are: i) job instructions, ii) rationale for tasks and their relationship with other tasks and goals, iii) information relating to company policies and practices, iv) feedback to employee on his performance, and v) indoctrination of employees.

The frequently used media of downward communication are: i) written or face-to-face, ii) posters and bulletin boards, iii) company magazine, iv) employee handbook, v) public address system, vi) information racks, vii) annual reports, use of grapevine, viii) letters and pay inserts, and ix) use of labour union.

2. Upward communication provides feedback on the extent of effectiveness of downward communication. It also provides data for decision making. An important aspect of upward communication is that it is summarized and condensed as it passes up through various levels in the hierarchy. This often results in its distortion. It is also distorted due the nature of superior-subordinate relationships. Upward communication flows through the following media: i) chain of command, ii) suggestion boxes, iii) private lines, Iv) personal contacts, v) attitude and morale surveys, vi) grievance procedure, vii) grapevine, viii) labour union, and ix) the informer.

3. Lateral communication occurs among peers- employees at the same level of hierarchy. It is essential for coordination and integration of diverse organizational functions.

4. Diagonal communication refers to interchanges between employees occupying different positions in organizational hierarchy and outside the chain of command. Much of staff-line communications are of a diagonal nature.

5. Unofficial communication takes place **w**hen manager informs his subordinate or others about an impending decision.

6. Grapevine refers to communication system informal groups. Management should listen to grapevine, feed it, and utilize it for strengthening the formal communication.

3.1.4.4 The communication media

Communication media are verbal and non-verbal. Verbal communication refers to face-to-face communication, written words, graphs, charts, etc. Non-verbal communication refers to gestures, facial expressions, etc. It is also called body language or silent language (Agarwal.R.D, 1995).

3.1.4.5 Communication networks

Communication networks are primarily of three types: i) circle, ii) wheel, and iii) all-channel or free-flow. Wheel channels are most effective for speed, accuracy and solving simple problems. Other networks are more useful when problems are complex and involve value judgments. They also provide greater task satisfaction (Agarwal.R.D, 1995).

3.1.4.6 Barriers to communication, and improving communication effectiveness

Major communication barriers are: i) perceptual differences, ii) we hear what we expect to hear, iii) words have different meanings to different people, iv) motivation and interest, v) perfunctory attention, vi) source, credibility, vii) filtering, viii) hidden agenda, ix) value ladden words, x) omissions, xi) context of communication, xii) hoarding, xiii) information overload, xiv) pressure of time, and xv) hierarchical differentiation.

3.1.4.7 Strategies for improving communication effectiveness

Strategies for improving communication effectiveness include: i) creation of an environment of trust and confidence, ii) clarity about the objectives of communication, iii) sensitivity to communication situation, iv) sensitivity to the receiver's frame of reference, v) empathic listening, vi) use of feedback, vii) use of grapevine and viii) use of redundancy and repetition (Agarwal.R.D, 1995).

CHAPTER FOUR

4.1 OBJECTIVES, KEY QUESTIONS AND METHODOLOGY OF THE STUDY

4.1.1 Objectives/Purposes of the Study

Stakeholders' participation plays profound role in an ecosystem based natural resource management in general and marine environment in specific. Because the problem contributed to the marine environment has two folds. It is either from natural phenomena or human activities on the costal and catchment area. And consequently the study has two main objectives in focus:

1. To examine the participation of the key stakeholders in BSAP adoption and implementation process.
2. To map, monitor, evaluate and assess the existing feedback mechanisms for providing stakeholder feedback to HELCOM Action Plan.

More explicitly, the study has the following sub-objectives:

- Identify the key Swedish stakeholders as a mean to begin developing a platform.
- Recommend on how to attain full and equal participation of the key stakeholders in BSAP implementation
- Assess critically the existing structure of communication channels and networks between key stakeholders and HELCOM/SEPA, and among the stakeholders.
- Articulate their perceptions toward the BSAP and its implementation.
- Enhance stakeholders' interaction and cooperation by facilitating a discussion between them.
- Assess the use of the contextual blended of both approaches in HELCOM Action Plan and its implementation
- Address the discrepancy created by the use of Top-down approach in drafting the BSAP, and uncovers space to integrate stakeholder agendas into its adaptation and implementation.

- Identify the strengths, weakness opportunities and challenges of the BSAP adoption and implementation from the key stakeholders' perspectives.

4.1.2 Key Researchable Questions

From the objectives of the study sated above and problem of the statement mentioned in chapter two, the study attempted to answer the following two fundamental research questions:

I. What role do stakeholders play in BSAP adoption and implementation?
II. How viable is the existing feedback mechanism between stakeholders and HELCOM/SEPA?

Subsequently, the research questions listed below have been emerged from the above key questions:

a. Who are the key Swedish stakeholders, and what are their perspectives and stakes in BSAP adoption and implementation?
b. How does stakeholders' participation affect the BSAP adoption and implementation?
c. What are the barriers of BSAP adaptation and implementation?
d. What are the strengths, weaknesses, opportunities, and treats of BSAP implementation?
e. What are the existing feedback mechanisms for providing stakeholders' feedback to HELCOM?
f. How could these mechanisms be used in transferring the stakeholders feed back to HELCOM?
g. To what extent do these mechanisms enable adaptation of BSAP and its implementation?
h. What are the existing barriers of feedback mechanisms in providing stakeholders' feedback to HELCOM?
i. What are the communication techniques and instruments in providing stakeholders' feedback to HELCOM?

4.1.3 Methodology

4.1.3.1 Methodological Approach

In the study, the Soft System Methodology was employed for developing a platform for the reasonable viewing of the key stakeholders toward the BSAP implementation at the national level in Sweden. Specifically, Stakeholders Participation and Existing Feedback Mechanisms in Providing Stakeholders Feedback to HELCOM/SEPA were addressed as centre of the study and viewed as system of problematic situations which are very complex and uncertain from the key stakeholders' perspectives having different perceptions and stakes of it. This approach equally engages all key stakeholders in to discussion and enable them develop interaction, cooperation and interdependence by bringing them into consensus to work on together by integrating all their efforts to enhancing the implementation of BSAP at national level in Sweden.

Using this approach, the result of the study was based on set of principles of methods which were reduced to number of methods uniquely and significantly suitable in addressing BSAP implementation and Stakeholders feedback mechanisms in Sweden at the national level. The Soft System Methodology was fostered by using Qualitative methodology and Participatory Rural Appraisal for collecting, analyzing and interpreting data, and participating the key stakeholders fully and equally during the study.

4.1.3.2 Methodological Argumentation

In the study, Soft System Methodology (SSM) was employed to address BSAP implementation specifically the two critical issues: Stakeholders Participation in BSAP implementation and Stakeholders Feedback Mechanisms in Providing Feedback to HELCOM/SEPA.

In Sweden, at the national level there are over ten key stakeholders directly or indirectly involved for the improvement of Baltic Sea Environmental problems in general and enhancement of BSAP implementation by carrying out projects and pilot study in particular. As such, their contribution has a tremendous impact in the improvement of Baltic Sea environmental problems. All these stakeholders work actively for achieving their won specific goals and objectives. Hence

this indicates that they have different perspectives and stakes toward the Baltic Sea management even BSAP adoption and implementation. An equal and full participation of those stakeholders and value their different perceptions and stakes so as to bring them into discussion and build up interaction, cooperation and interdependence between HELCOM and them, and/or among themselves, could lead to well coordinated and integrated management of Baltic Sea. Thereafter, BSAP can be fully implemented. However, having different values, perspectives and stakes in Baltic Sea is by itself a problematic situation to bring these stakeholders in to consensus for a change. Besides, Baltic Sea environmental problems are very complex and ill-structured on which radical change is urgently needed to improve them.

Hence, SSM is a suitable methodological approach to address the complex environmental problems as it values and respects the perception and stakes of stakeholders without having preconceived ideas and concepts to influence them before the intervention, and thereby to bring a significant change in the management of Baltic Sea. The main notion of SSM is that there are multiple facts in the real world. Check land (1988, 1999) states that SSM seeks to work with different perceptions of reality, facilitating a systemic process of learning in which different viewpoints are examined and discussed in a manner that can lead to purposeful action in pursuit of improvement. Therefore, it could be argued that SSM was an appropriate and suitable methodological approach for the study.

4.1.3.3 Methods and Tools

A Purposeful sampling strategy was employed in identifying and addressing the key stakeholders and their perspectives and stakes on BSAP implementation and assessing the existing feedback mechanism at the national level in Sweden. Thereafter, a qualitative inquiry was designed where by a standardized open-ended interview (semi-structured questions) and participatory tools were used in gathering information and developing the rich picture of these problematic situations.

4.1.3.3.1 Data Sampling Method

In this section, Maximum Variation Purposeful sampling was used to identify the key stakeholders, which have central importance and influence on the implementation of Baltic Sea

Action Plan in Sweden at the national level. Purposefully, key stakeholders which has different (various) stakes and perspectives in Baltic Sea in general and Baltic Sea Action plan implementation in particular at national level in Sweden, were identified to attain the specified objectives by studying in depth and thereby design information-rich cases.

4.3.3.2 Data Collection Method

In the study, primary data was collected using Participatory Rural Appraisal Tools and Standardized open-ended interview with the key stakeholders of Baltic Sea at the national level in Sweden. In addition, secondary data was used from different articles, reports, newsletters, and research and scientific papers. The methods used for data collection are as follows:

4.3.3.2.1 Standardized Open-Ended Interview

An open-ended interview with semi-structured questions was used for the interview (discussion) with key stakeholders of Baltic Sea at the National in Sweden. The questions were formulated to make the interview to be conversational by placing the probing questions in the appropriate places. This technique was chosen to be used to minimize researchers' judgments and effects by asking the same questions and taking in to account its simplicity for data (text and ideas) analysis and stakeholders time constraints.

4.3.3.2.2 Participatory Rural Appraisal (PRA) Methods and Tools

Participatory rural appraisal (PRA) methods and tools were used for collecting data so as to have an overview and develop the rich picture of the problematic situations in Baltic Sea. And the key stakeholders were guided and practiced the tools and methods themselves without any researchers' influences. The following most appropriate and suitable methods and tools to address BSAP implementation at national level in Sweden, were used during the study after the intervention:

1. Problem and Solution Analysis:-is the rational analysis of problems (effects and causes) followed by analysis of solution (benefits and ways of achieving solution).

2. SWOT Analysis (Strength, Weakness, Opportunity and Treat):- is project evaluation through Strengths, Weaknesses, Opportunities and Threats.

3. Venn Diagrams:-is institutional and personal analytical tool to make visible importance and influence of external and internal agencies.

4. Force Field Analysis: - is a technique to visually identify and analyze forces affecting a problem situation so as to plan a positive change.

5. Stakeholders Analysis:-is the identification of a project's key stakeholders, an assessment of their interests and the ways in which these interests affect project riskiness and viability It is a method which is used to analyze the inter relationships-power and influence-between different stakeholders.

4.1.3.3.3 Data/ Content Analysis Method

Data/Content analysis is the process of identifying, coding, and categorizing the primary and critical issues or patterns in the data. In short, it means analyzing the content of the interview or discussion.

In this section data collected from interviews and secondary sources were analyzed critical issues of the study by indentifying, coding and categorizing their primary and critical issues using qualitative methods such as Case Analysis and Cross-Case Analysis.

4.1.3.3.3.1 Case Analysis

In this section, it was begun with Case Analysis which enabled writing a case study for each stakeholder interviewed or each organization's perspectives studied. It was appropriate for the study to begin with each stakeholder case studies as their multiple perspectives were the primary focus of the study. The data collected from the interview/discussion with each stakeholder was condensed, organized, classified and edited in to manageable and accessible package. Then, a case study of each stakeholder was narrated in a readable, descriptive picture and presented each perspective and stake in BSAP implementation in holistic portray.

4.1.3.3.3.2 Cross-Case Analysis

In this section, after Case analysis were made for writing case studies, Cross Case Analysis of all cases were carried out by grouping together the answers obtained from different key stakeholders of BSAP implementation to the key fundamental questions of the study or analyzing different perspectives of all stakeholders on BSAP implementation specifically to the Participation of the Key Stakeholders in BSAP implementation and the Existing Feedback Mechanisms on the basis of the fundamental questions of the study.

4.1.3.3.4 Conceptual Framework and Modeling

In this section, Root Definition and CATWOE framework of the two issues : Stakeholders Participation in BSAP implementation were designed and elaborated for developing abstract Conceptual Model with relevant activities. Step 3 and Step 4 in the stages of SSM were practiced to develop an abstract conceptual model of these two study issues.

4.1.3.3.4.1 Root Definition

An issue-based type of root definition was used to express each study issue as a system that was needed to be improved by identifying the purposeful activity.

4.1.3.3.4.2 CATWOE Framework

It was used to enhance root definition and conceptual model by identifying key stakeholders, actors and owners involved, and bringing forth transformation process and the worldview (stakeholders' perspectives) and questions on the two study issues. Besides, it was used also for evaluating the completeness of root definition and conceptual model.

4.1.3.3.4.3 Abstract Conceptual Model

Abstract conceptual models with relevant systems or activities were developed on the basis of the purposeful activity (root definition) and CATWOE frame work for the improvement of the two critical study issues. Failure or success of these models was based on the criteria of 3 E's

(Efficacy, Efficiency and Effectiveness) which were useful for evaluating and monitoring the relevant systems or activities.

4.1.3.4 Concluding Remarks of Methodology

In this study, only the four steps of SSM: Step1, Step 2, Step 3 and Step 4 were practiced in addressing the two critical study issues of BSAP implementation. Thus, these issues were defined and expressed as problematic situations and the rich picture of them were developed accordingly. And, abstract conceptual models with relevant activities or systems were developed for the improvement of these two critical study issues.

A workshop was designed to carry out the rest steps of SSM: Step 5, Step 6 and Step 7 by which the ideal or abstract conceptual models with their relevant systems could be compared with the reality and be assessed their feasibility and desirability by getting feedback from the key stakeholders through having discussion among them. On the basis of the stakeholders' feedback, an adjustment and modification of the conceptual models can be done before they are implemented in real world. However, a workshop was not carried out due to time and financial constraints. Therefore, the rest steps of SSM: Step 5, Step 6, and Step 7 were not practiced in this study.

A questioner was formulated aiming at to validate and avoid biasness of the data collected from the key stakeholders. However, it did not work out for the reason that each organization was considered as one key stakeholder of BSAP implementation. Thus, there was small sample size even though it was open and decided by the researchers. Therefore, the questionnaire was not relevant to the study.

In the study, a monitor and control system for evaluating relevant activities /systems performance were done against the 3 E's (Efficacy, Efficiency, and Effectiveness).These are the most important measures of performance which signal the regress or progress of pursuing the relevant activities within the system. However, the rest 2 E's (Ethics and Elegance) are related outside of the system thinking which can be useful for monitoring and evaluation when comparison of these abstract conceptual models with reality are only done. However the

comparisons of the abstract conceptual models with reality were not done. Therefore, 3 E's (Efficacy, Efficiency, and Effectiveness) were used as a monitor and control system in the study.

CHAPTER FIVE

5.1 DATA ANALYSIS

5.1.1 Case Study

5.1.1.1 Ministry of Agriculture

Ministry of Agriculture has no sole stake and curiosity in Baltic Sea. But as an independent sector, it is involved in the decision making process in regard to the Baltic Sea environmental problems in general and BSAP in particular. Then, after final agreement has been reached in Sweden about HELCOM convention concerning BSAP and other Baltic Sea related issues, it is the Ministry of Environment delegate usually attend the meeting and signs the agreement. At present, Baltic Sea environmental problems are one of these critical issues which are given high priority in the Swedish government agenda.

The Ministry of Agriculture works only the decision making of the whole package of agreement in the BSAP at the highest political level, and gives instruction to agencies on what issues to prioritize and work on scientifically to attain the environmental targets in Baltic Sea. However, these agencies are responsible to find out appropriate measures to tackle eutrophication and other environmental problems in Baltic Sea. They are partially involved in the decision making process. They just deliver report about their routine work, progress, impediments, implications and achievements about BSAP implementation.

“We perceive that the main cause of eutrophication in the Baltic Sea is nutrient loadings from Agriculture. It is a complex phenomenon to generalize that reduction of nutrient loadings from agriculture could completely improve eutrophication problem in the Baltic Sea. Hence, the relationship between accumulated nutrients and eutrophication is very complex”.

So far, it has been working to improve eutrophication in Baltic Sea for the last 20 years. The first decision about reduction of nutrient loading from agriculture was made in 1980.Later, in 1994, a manifestation for taxation and subsidies were made both for application of fertilizers to increase agricultural production and shifting from inorganic to organic farming system

respectively. As the result, a significant improvement or progress has been attained in the Baltic Sea coastal areas. Moreover, there is a big change in the farmers' behavior toward nutrient loading from agriculture and its impact on Baltic Sea, and raise in the public awareness. However, in the open Sea, there is a very complex process taking place on which it takes long period of time to see the impact of the measures taken so far as the retention period of Baltic Sea is thirty years.

In general, BSAP is one way of resolving the environmental problems in Baltic Sea. Also it is not the right time to answer whether BSAP addresses fully Baltic Sea Environmental problems or not. Because BSAP implementation is a long time process which is hard to conclude its effectiveness and impact right now. Obviously, it takes decades to see the impact of the action plan on the Baltic Sea in general even though a progress has been achieved in the coastal areas. At least, it attempts to find out the best effective and efficient measures to resolve the environmental problems striving to attain the targets in spite of facing many challenging factors such as lack of political will, social and economic implications of all riparian countries, the current financial crisis and climate changes.

Ministry of Agriculture has a role in the discussion about BSAP formulation and implementation at the highest political level. So, it has participated in the meetings and discussions for the formulation of the Baltic Sea as one of the highest governmental bodies. But it is not solely influential in the meeting as BSAP is a political agenda in the end.

Ministry of Agriculture is responsible for actions taken concerning nutrient loadings from agriculture. But regulations are made by Swedish Agricultural board. So, Swedish Agricultural board is an authorized body with LRF (Swedish Farmers Federation: see at section 5.1.1.7 on page 95 for detailed information) and County board in the BSAP implementation and revision. It is ready to put all efforts for BSAP implementation in terms of decision making process /political agenda and distributing budgets for environmental and agricultural agencies.

Ministry of Agriculture as a governmental body which is frequently involved in the decision making process concerning Baltic Sea and BSAP package, and gives equal weight to the four segments of BSAP: eutrophication, Hazardous substances, Biodiversity and Nature conservation including Fishery and Maritime activities. Separately, it is a sole responsible body/sector to give

instructions about Agriculture and other related issues such as nutrient loadings from Agriculture (diffuse source of eutrophication).

Table 3. SWOT Analysis practiced by Ministry of Agriculture.

STRENGTH	WEAKNNESS
• All countries are concerned about Baltic Sea. • It attempts to get the description of the problems. • It intends to involve stakeholders in Baltic Sea. • It tries to look the problems in a structural way.	• It is a convention which is not legally binding, no directives/legislation. • It is a political agenda. So it depends on the good will of the riparian countries.
OPPORTUNTIY	**TREATS/CHALLENGES**
• There is a regular discussion. • A significant improvement has been achieved in Baltic Sea coastal areas.	• The current financial crisis. • Too optimistic/high expectation to get a solution from BSAP within a short period of time. • The people's different perspectives to ward BSAP and Baltic Sea.

It (Ministry of Agriculture) is engaged directly or indirectly in public awareness raising and capacity building regarding environment and sustainable development and management in Baltic Sea region. There are sixteen environmental objectives in the Swedish government legislation. Some of them are much related to agriculture like organic farming. It also participates in financing by apportioning its budget to its branches and agencies working actively on environment and maintaining sustainability in Baltic Sea. Then, these agencies/ organizations finance projects in raising public awareness and capacity building. However, concerning to the implementation and revision of BSAP, the responsible bodies are Swedish Agricultural board, county board and Swedish Farmers' Federation (LRF).

There is a direct communication between our department and other countries department. Ministry of Agriculture is always representing Sweden in the meeting about Baltic Sea at the regional level. But there is no feedback mechanism with HELCOM which is an authorized body for BSAP package and environmental problems of Baltic Sea. HELCOM does not contain Agriculture as a segment in its targets. However, SEPA (Swedish Environmental Protection Agency) and other agencies have direct communication and good feedback mechanisms with HELCOM about BSAP. The governmental delegates are responsible for BSAP implementation at the regional level but at the national level, is SEPA.

At present, even though, there are some improvements, Baltic Sea is in a very critical situation due to the decrease of oxygen level at the bottom of the sea, and the relationship between climate change and nutrient loadings and accumulations in the open sea is very complex too. However, it is difficult to predict the future situation of Baltic Sea having the current data., Hopefully things are going well and in the right direction so as to attain the four main targets and thereby improve eutrophication in particular and environmental problems in general in the Baltic Sea.

"We recommend that an EU water directive has to be incorporated in BSAP in order to maintain Integrated Catchment Management which includes fresh water management (Rivers and lakes) as well. Because, the catchment area of Baltic Sea is four times larger than the open sea". Hence, it is logic that a large amount of nutrients are leaching from the catchment and are deposited in the Baltic Sea. So, managing the inland (fresh) water resources has a significant impact in the improvement of Environmental problems of the Baltic Sea. Besides, incentives should be given to farmers to practice organic farming so as to reduce application of fertilizers. Thus, nutrient loading from agriculture to the Baltic Sea could be reduced significantly.

Table 4. Stakeholder Influence/Importance Matrix practiced by Ministry of Agriculture.

HIGH IMP0RTANCE/LOW INFLUENCE	**HIGH INFLUENCE/HIGH IMPORTANCE**
A. • LRF • SEPA • COUNTY PARTIES / MINISTERIAL COUNCIL	B. • RESEARCHERS
C. • GREEN PEACE • BALTIC 2020 • BALTIC 21	G. • MINISTRY OF AGRICULTURE • MINISTRY OF ENVIRONMENT • WWF • CCB
LOW IMPORTANCE/LOW INFLUENCE	**HIGH INFLUENCE/LOW IMPORTANCE**

This table describes that the most and / or least important and influential stakeholders to BSAP implementation at national level in Sweden.

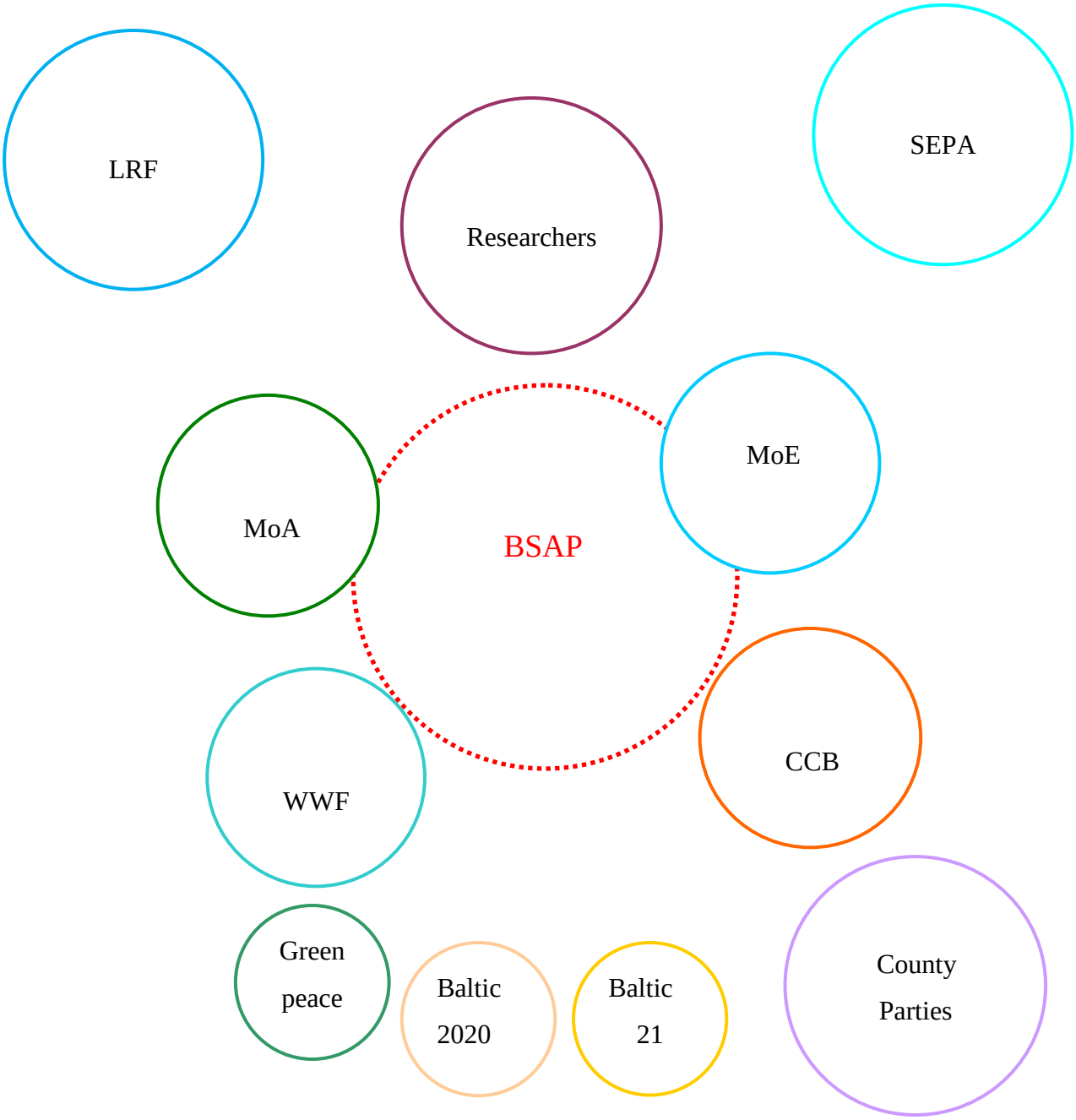

Figure 6. Venn diagram practiced by Ministry of Agriculture.

The figure illustrates that the distance of a circle from BSAP shows its influence and the size of the circle its importance. The closest to BSAP the most influential and the biggest the circle the most important is the organization.

5.1.1.2 Swedish University of Agricultural Sciences (SLU)-Researcher "A"

SLU researchers interests' in Baltic is to assess nutrient loading (leaching) in Baltic Sea. These nutrients (nitrogen and phosphorous) are being washed away (leached) from different sources and deposited in Baltic Sea, and thereby pollute the maritime and biodiversity of the aquatic system. The task of SLU researchers is to collect data and develop models for the leached nutrients and deliver the input data annually to the responsible governmental and nongovernmental organizations such as HELCOM and SEPA by which they incorporate in the package and practice them for the effectiveness and efficiency of BASP implementation and make revision as well.

"Though our concern is to the entire Baltic Sea environmental problems, We mainly emphasis in conducting research to assess and monitor the diffuse source of eutrophication from Agricultural and forest lands, which are the main contributors of nutrients to Baltic Sea. Thereby to foster the BSAP implementation and make revision through collected (input) data by delivering it to SEPA. In order to meet the objectives of minimizing the amount of nutrient load from diffuse sources in our case from Sweden through carrying out activities such as Modeling, Monitoring and Mapping of nutrient leaching has been performed since long time. SLU believes that the research outcome has a paramount role in BSAP implementation and revision".

The effects of diffuse sources depend on time and space for different countries. In Sweden, human activities have large impact on the cause of eutrophication for the last 50-70 years mainly from the point source especially where there was no sewage treatment, and largely accumulated in Baltic Sea for many years. Now, there was no a problem of point source of eutrophication in Sweden as the sewage treatment was improved. Hence the emphasis is more on the reduction of (nutrients loading) diffuse source of eutrophication from agricultural and forest lands.

BSAP contributes important role in risk minimization though it does not fully address the environmental problems of Baltic Sea in general and diffuse source of eutrophication in particular. It was designed based on political decisions. So it requires much detailed local information from the riparian sates such as, soil type, crop variety land use type and so on.

As matter of fact, the Baltic state countries do not contain analysis of cost-effective measures. Besides, the effectiveness and reliability of BSAP is based only on the coarse data of environmental problems which is not scientific. In order to make BSAP more solution oriented and be adaptive and applicable, a comprehensive, deep and thorough study on the cost-effective measures must be carried out in all riparian countries

As mentioned above, SLU Researchers are responsible for implementation and revision of BSAP via delivering information/ data about nutrient leaching from agricultural and forest lands. It also plays a great role by searching new and effective measures through experiments and tastes that reduce efficiently and effectively the loading of nutrients in Baltic Sea. As long as the old measures are not effective and efficient enough in the reduction of nutrient leaching, they always have discussion with many experts in finding new and effective measures. To exemplify few, they do experiment on the importance of cash crops and buffer zone on the reduction of diffuse source of eutrophication in Baltic Sea.

In regard to formulation/design of BSAP, it is HELCOM which solely designed the Action Plan containing four Environmental objectives to attain improved environmental condition in Baltic Sea, even the assigned quotas of nutrient loadings that each riparian country should reduce. It is vague on how HELCOM come up with such quotas and on what bases did they reach in to consensus. For example, it is not clear why Sweden has got the highest quotas of reduction of nutrient loading in Baltic Sea despite the loading is very small comparing with Poland and other Eastern European countries.

“As SLU researchers, we develop models of nutrient loadings and its impact in Baltic Sea, and research its counter measures so as to attain the environmental objectives. But we were not engaged in the formulation/design of BSAP. So that we were not part of the decision making process of it. Overall, it was a political decision of contracting parties at the ministerial level. However, the revision of BASP is now going on, and we are hoping to see if there is a significant change in its content, and are realistic to reach the four targets”.

"We have shown our readiness practically by tasting and experimenting new measures which can significantly reduce nutrient leaching from Agricultural and forest lands. At present, we support the concerned and responsible authority of BSAP implementation by calculating the effect of counter measures using model scenario and monitoring, evaluating and mapping its practical impacts on the ground".

Table 5. SWOT Analysis pracitced by SLU Researcher A.

STRENGTH	**WEAKNESS**
• Data and competency for modeling, monitoring and mapping in general. • National targets are quite straight forward to be followed up. • Specific targets for reduction of nutrient leaching. • All countries agreed on the BASP package.	• Data for mapping of Soil type is not enough. • Much more data is required for reduction of diffuse source of eutrophication. • Implementation is a very slow process. • Timetable is formulated for long period of time, and is optimistic.
OPPORTUNITY	**TREATS/CHALLENGES**
• To fit WFD (Water Framework Directives) on BASP for the Integrated Management of Catchments'.	• Difficult to get authorities work with the plan and assess their effectiveness over long period of time. • It is not easy to implement the Action Plan in the non EU member, Russia.

Generally speaking, there is a similarity with general objective of mitigating Baltic Sea problems between researchers, institutions and/or among riparian countries. They all show their

willingness on the reduction of the nutrient loading to Baltic Sea. But based on differences in finance, human resource and others, their approach is quite different at national as well as local level.

Taking time frame into account, an urgent priority should be given to the management of the emission of hazardous substances accidentally from ships and other sources to Baltic Sea. Because, it takes a long period of time to improve it, and also cause serious damage to the Baltic Sea ecosystem. The rest might be equally significant and should be addressed in parallel as they are more or less connected one another in the context of ecosystem.

Despite SLU researchers are not actively and directly involved in working on all the sections. They engaged in raising public awareness on nutrient through the sub projects funded by EU and SIDA such as Harmonization and Methods project. They give more emphasis on capacity building by educating, workshops, seminars and training expects of other riparian countries on how to develop model, and do modeling, monitoring and mapping of nutrient loading in Baltic Sea. Besides, they shares knowledge, experience and information with other riparian countries such as Latvia, Estonia, Russia, Lithuania and Poland. Most projects focused in research about the reduction of nutrients loading like manure handling (peats) and are largely funded by World Bank and NEFCO. It engaged in the implementation and review of BSAP by delivering data/information, experimenting new measures and developing new models.

There is not direct communication with HELCOM in providing feedback concerning the BSAP at the national level. SLU just write reports to Swedish Agricultural Board and SEPA which are authorized on the Action Plan implementation and Revision. Only Swedish government has a direct communication with HELCOM at the national level. BSAP, at the end, it is a political work/agenda. At the international level, there is a direct communication and quite close cooperation between SLU and HELCOM in the design and implementation of Pollution Law Compilation (PLC).In general, the feedback mechanism on BSAP between SLU and HELCOM is not bad as SLU is not involved in a political work.

At present, there are some positive trends in the reduction of nutrients and chemicals in the coastal areas whereby adequate improvement has been achieved in the environmental conditions. However, at the centre of the Baltic Sea (open sea), there is no any improvement so far because of the continuous accumulation of nutrient sediments due to nutrients loading and land uplift which enhances the growth of algal blooms and decrease dissolved oxygen at the bottom. These cause uneven salinity concentration to be high at the bottom and law close to the surface of the sea. This tremendously affects the biodiversity of Baltic Sea. Hence, it is a natural and irreversible process where the environmental problems of Baltic Sea are likely to be remained unresolved in the future. Therefore, it is very recommendable to manage the central part of the Baltic Sea (open sea) separated from the coastal areas and catchments. But it should be recognized that large improvement of the central part of the sea (open sea) might not be realistic.

It can practically be suggested that all stakeholders should give more priority and attention to cost effective measures. Even EU subsidies and incentives are urgently needed to be shifted in finding cost effective measures so as to reduce the environmental problems of Baltic Sea.

5.1.1.3 Coalition Clean Baltic (CCB)

CCB is a party-politically independent, non–profit organization with the overriding goal to promote the protection and improvement of the environment and natural resources of the Baltic Sea Area. It is an observer in HELCOM. But it has no any role in Baltic Agenda 21 which was designed for the sustainable development in Baltic Sea region.

CCB prioritizes in three areas whereby restoration of the marine environment of the Baltic Sea could be attained. These areas include promotion of good ecological water status, prevention of installations and transport harmful to the Baltic Sea environment and coastal areas, and development of sustainable Baltic Sea fisheries.

CCB works mainly through means of lobbying, information, environmental education and other activities to raise public awareness at local or national grass root level about environmental protection and sustainable use of natural resources and enhance concrete co-operation projects in the field to have implemented them covering a wide range of issues relevant to environmental

protection, nature conservation and sustainable development in the Baltic Sea region. It also supports member organizations by gathering and distributing information about activities (meetings, conference, options for funds and co-operation) in the Baltic Sea Region of relevance to its member organizations. Furthermore, it works on the internationally decided quotas in taking effective measures and foster BSAP implementation.

CCB has also cooperation with international fishery organization in protecting fishes. So far, Russia is not member of EU but there is a fishery bilateral agreement between Russia and EU. The collapse of Soviet Union was a chance for CCB to develop a network with some riparian countries such as Latvia, Estonia and Lithuania.

CCB views that the main diffuse source of eutrophication is Agriculture. It contributes more than 50% of the overall nutrient loading in Baltic Sea. Hence, it is one of the priority areas of CCB which puts efforts and work jointly with other organizations to reduce eutrophication and restore the marine environment of the Baltic Sea. Under this priority area, CCB has been carrying out a number of activities and projects aimed to promote sustainable waste water treatment, sustainable river basin management, and water protection measures in Agriculture.

“We had participated in the formulation and preparation of BSAP. Even some of the actions or recommendations of our proposals are included in the package particularly Baltic Salmon and Reduction of point source of eutrophication by decreasing discharges from industries.BSAP is partly representing our proposals.In short, We are influential in BSAP’s design, implementation and review”.

CCB considers the BSAP as quite good plan but it does not solve all environmental problems of Baltic Sea. So, EU must give weight to Baltic Sea and take certain measures to counter them.There will be a meeting about BSAP implementation which will be led by Russia as a chairman. Each country has its own national policy for BSAP implementation, and will be evaluated according to the agreement during the meeting.

CCB plays a great role in BSAP implementation through developing good network communication of different countries, and following how BSAP is implemented and supporting

and organizing seminars, and providing with materials for its implementation. However the activities are different with in different countries in regard to BSAP implementation.

"We give priority to eutrophication and fishery in Baltic Sea to be addressed at first. Practically, we have been actively working on these two critical issues as our main goals and objectives though biodiversity and nature conservation are significantly interconnected with them. Besides we work with marine activities to some extent".

Table 6. SWOT Analysis practiced by CCB.

STRENGTH	**WEAKNESS**
• Each riparian country agreed on quotas for reduction of nutrient loadings • The decision on using the model of ecological quality criteria • Fifty percent (50%) reduction of nutrients loads agreed and signed by politicians.	• Quotas have not been attained efficiently and effectively. • BSAP package is a political agenda. It is apolitical process to attain all the targets. • It is too costly to be implemented.
OPPORTUNITY	**TREATS/CHALLENGES**
• EU marine directives could bring commitments if it is signed by EU council. • The progress made in the coastal areas. There is a reduction of nutrient loadings.	• There is no legislation or binding force for the BSAP to be fully implemented. • Russia is not member of EU. And, EU marine directives do not include Russia. • World Economic/ Financial crisis and different economic interests of riparian countries.

"We participate in raising public awareness mainly to eutrophication by organizing seminars, distributing publications and leaflets, constructing demonstrations and campaigns and translating

materials in international languages. We give training to experts of riparian countries other than Sweden in enhancing their skills and knowledge on different techniques. Also, we partially do finance small projects carried out by member organizations by getting funds from SIDA and EU.

There is a two way communication between CCB and HELCOM and other organizations in delivering proposals, reports, comments and critics. CCB uses all kinds of communication techniques for contacting HELCOM and stakeholders. CCB has a network with all stakeholders in Baltic Sea. It is open to have a meeting with HELCOM in issues related to BSAP and Baltic Sea. There is a transparency and openness that each and every stakeholder can articulate its perception in all meetings with HELCOM on BSAP implementation. CCB has credibility and influence on BSAP formulation and implementation even some of its proposals are entailed in the BSAP package. So, there is a full participation of all stakeholders in the regular meetings of HELCOM concerning BSAP. However, it needs support from governmental bodies for its critics and comments to be considered and influence for a change. In fact, it has a role to criticize any government of the riparian countries on behalf of a government and in raising awareness how the international community. In general, there is a viable feedback mechanism between stakeholders and HELCOM.

At the national level, the responsible body for BSAP implementation in Sweden is SEPA even the efforts are required from all stakeholders and society. However, at the regional level, it is the responsibility of governmental bodies/delegates for BSAP formulation and implementation

In order to see the outcome of the BSAP concerning eutrophication, it needs decades the change in the ecosystem of Baltic Sea. However, other segments like Bio-diversity requires a short period of time to see a change if pollution is reduced. This is due to Baltic Sea retention period is thirty (30) years before it flows to Atlantic Ocean. Thus, BSAP is a very slow process. HELCOM is a good model as an internal and intergovernmental organization for riparian and other countries.

At present, there are still environmental problems of Baltic Sea to be resolved even new EU strategy plan are involved in the Baltic Sea issues. So, as matter of fact, it can play a significant

role to resolve few problems. In the future, a lot has to be done to attain the four targets/segments of BSAP.

Financial resources are very important for the existence of nongovernmental organizations. Provide enough financial resources play a significant role to have professional and competent nongovernmental organizations in the society. Thereby a strong society and good environment can be maintained and established.

5.1.1.4 Baltic 2020

Baltic 2020 is an independent organization with aim to stimulate concrete measures and initiatives based on the best available knowledge to improve the environment of the Baltic Sea. It mainly emphasizes on eutrophication and fisheries. It is also actively working to enhance the public interest and engagement in the region by motivating public debate through various media and other communication tools in order to generate adequate consideration and participation so as to influence the decision makers. Furthermore, it advocates the need to integrate the policy areas of the environment, agriculture and fisheries which can be accomplished when the existing policies are reformed in the coming years. Its main focus areas is to improve eutrophication problem in Baltic sea by reducing the diffuse leakage of nutrients from land based sources, increasing cod fishing, introducing chemical sewage treatment in the entire region, strengthening public awareness, contributing to the reform of the common European agricultural and fisheries policies and finding new and different solutions or measures.

“We believe that Agriculture is the main contributor of nutrient loading to Baltic Sea which is the diffuse source of eutrophication. It contributes more than 50% of the total nutrient loading in Baltic Sea”.

BSAP is actually a good basis for taking counter actions against eutrophication so as to attain environmental improvements in Baltic Sea. However, it is very ambitious plan to achieve good ecological status in the Baltic Sea despite the good intentions and willingness. So that it might not be implemented. In addition, the fact that a binding mechanism is needed to strengthen its implementation and good governance structure to ensure delivery on the identified actions.

BSAP lacks financial instruments as the commitments have not yet been backed up by resource allocation. The plan has short term economic interests as well.

Table 7. SWOT Analysis practiced by Baltic 2020.

STRENGTH	**WEAKNESS**
• It has a vision of ecological status/better biological status of diversity. • There is a concrete quota that each riparian country has to reduce the nutrient loads.	• Some riparian countries are very fast and efficient but some are not. Some are working very hard for its implementation but some are not. • There is lack of political will of some riparian countries. • There is lack of financial support. • It is not binding. It has no forceful mechanisms/legislation.
OPPORTUNITY	**TREATS/CHALLENGES**
• A significant progress has been achieved in the coastal areas. • Revision of the quotas assigned for each country in the reduction of nutrient loadings.	• It is very slow process. The outcome of the BSAP will be seen after decades. • Some riparian countries are working very hard but some are not. • Russia is not a member of EU.

Moreover, it is a very slow process which has no legislation for its implementation by riparian countries. It has no directives as it is only a convention. Hence, it is not a binding plan on which its recommendations may not be possibly and fully implemented. Even Some riparian countries do not attend the final meeting in Krakow which demonstrates the lack of good political will. However, EU strategies could play a great role in the Action Plan implementation.

“We are not directly involved in the formulation of BSAP. But we are indirectly participating in the implementation by enhancing its targets through carrying out projects outside Sweden. Because, our organization is small and working until 2020. But BSAP is long run project. So, we do not attend in HELCOM regular meetings about BSAP. We rather focus on participating on already running projects just to add values so as to enhance the BSAP implementation. However, other stakeholders like WWF are actively engaged both in meetings of and deliver their views and documents to HELCOM”.

The only difference between Baltic 2020 and BSAP objectives is that it does not incorporate fishery segment in the four main objectives/targets of BSAP. But there is similarity between Baltic 2020, HELCOM and other Stakeholders in other aspects.

Baltic 2020 gives priority to eutrophication and fishery to be addressed as urgent as possible, and has been working to improve them and attain better biodiversity status. Concerning the four sections: development of tools and methodologies, Awareness raising and Capacity building, Financing, Revision and Implementation of BSAP. Baltic 2020 participates in capacity building in Poland by training technicians of waste water treatment, and also finances projects which work on awareness raising and enhancing indirectly the implementation of BSAP. However, it does not directly involve in the implementation and revision of BSAP at all. There is only one way communication between Baltic 2020 and HELCOM concerning BSAP, information and projects carried out by Baltic 2020. So that there is no feedback mechanism between Baltic 2020 and HELCOM in delivering comments, suggestions and criticism.

In Sweden, the responsible body for the BSAP implementation at the national level is Swedish Environmental Protection Agency (SEPA). But at the regional level, it is the governmental body / delegates like the Ministry of Environment.

The present situation of Baltic Sea is very optimistic as public awareness is increasing toward the relationship between social and ecological aspects. However, the future is very questionable as it is very ambiguous how far climate change affects it. In order to attain a better ecological status of Baltic Sea, a good political will also plays a big role.

In general, the ecological stress in the Baltic Sea exacerbates the widespread and difficult problem of managing fishing in a sustainable fashion, which has become a serious concern all

over the world. In addition, fish stocks of some species have declined to a near or below the level at which the species can reproduce fast enough to sustain itself.

New studies suggest a strong connection between cod shortage and the extent of algal bloom afflicting Baltic countries every summer which cause decrease oxygen concentration at the bottom of the sea. When Cod stocks are low, Sprat stocks benefit, which reduces the incidence of Zooplankton, creating favorable conditions for Phytoplankton and algae bloom is a fact. Cod shortage exacerbates the effects of over-fertilization, often cited as the Baltic's most serious environmental problem. Efforts to increase the Cod population would have a rapid positive effect on the Baltic's environment, while also improving profitability within the Cod fishing industry. Therefore, Increasing Cod fish stock could get rid of Eutrophication problem in the open sea while maintaining fish stocks sustainably.

5.1.1.5 Swedish Board of Agriculture

Swedish board of Agriculture stake or interest in Baltic Sea is mainly to reduce eutrophication problem which is caused largely by Agriculture. The respondent suggested that the main cause of eutrophication is agriculture. It causes about 50% of anthropogenic losses of nitrogen and phosphorous. It is difficult to simply conclude that the BSAP does not fully address the Baltic Sea problems specifically the diffuse source of eutrophication. But we think that it is not possible to reach the objectives in Sweden at the national level without decreasing agricultural production. And, this is unlikely to be achievable.

"We were not involved in the formulation of BSAP. It is a political agenda. But, we are involved in its implementation by actively participating in different works /targets to find possible measures in a cost effective way to reducing nutrients loadings without undermining the maintenance of sustainable agricultural production".

Some of the works that have been carrying out so far are "Föreskrifter" concerning handling manures, agro-environmental extension services; "Greppa Näringen" focuses on nutrients and figure out environmental support systems in complement with legislation. It also supports research and field experiments on "N" and "P" nutrients loads.

Table 8. SWOT Analysis practiced by Swedish Board of Agriculture.

STRENGTH	WEAKNESS
• Different catchment areas/Baltic Sea basins with different interests are identified. • All riparian countries agreed and signed on the BSAP package.	• The work that has already done is monitored and evaluated efficiently and effectively. So, it is very difficult to the final steps.
OPPORTUNITY	**TREATS/CHALLENGES**
• Reduction of nutrient loads in the coastal areas. • BSAP revision for decreasing quotas of nutrient loads reduction of each riparian country.	• All measures necessary to attain the goals cannot be found so far. • There is only one Model known as MARE NEST model is being used in Baltic Sea which is not fully address the environmental problems. • The role of "N" and "P" nutrients and their relationship between themselves and to Algal blooms and oxygen deficiency at the sea bottom are very important but they are not thoroughly clear.

There are similarities and differences between our organization and other organizations concerning stakes and perspective on the Environmental problems of Baltic Sea specifically on the diffuse source of eutrophication. However, they must simultaneously work together to adopt and implement BSAP to reduce environmental problems as they are all dependent each other. Besides, they should incorporate also WFD and inland (fresh) water in the BSAP.

Our organization is involved partly in the development of tools and methodologies which have four different sections such as awareness raising, capacity building and revision and implementation of BSAP. It is in engaged in raising awareness of our members and clients toward the Baltic Sea environmental problems particularly eutrophication problem and nutrients loadings by campaigning, distributing leaflets and training them. Swedish Board of Agriculture is a branch and is partly involved in financing and implementation of BSAP. It is largely done by policy and decision makers.

The existing feedback mechanism is just to deliver the data concerning the effectiveness of different measures practiced on agricultural fields and farms using models and database. The responsible body for implementation of BSAP at the regional level is County administrative Boards. But at the national level, it is the SEPA (Swedish Environmental Protection Agency).It is difficult to interpret the present and future situation of the Baltic Sea as it take long time to recover it, and the outcome of BSAP could only be seen after a long period of time possibly decades. However, we should work effectively and efficiently with responsibility to recover Baltic Sea.

5.1.1.6 World Wildlife Fund (WWF)

WWF, as an environmental concerned organization, has a stake about the environmental issues of the sea and works actively to improve the situation via environmental management with special focuses on eutrophication, fishing and maritime management. In short, its target is to have well improved integrated management of natural resources.

It is true that there are large inputs of nutrients arising from various human activities in the catchment area of the sea, which lead to nutrient enrichment in the sea. But the main cause of eutrophication is from diffuse source where nutrient loadings are leached from Agricultural activities (mainly nitrogen and phosphorous).Its negative impact is increasing with time in the Baltic Sea.

WWF, like many organizations and governments around the region, welcomed HELCOM initiative to launch the Baltic Sea Action Plan (BSAP) but later it perceives the plan as an

ambitious one. This is mainly due to that it does not fully address all environmental problems with its corresponding effects in the sea. Simply it is a political agenda which does not include necessary actions to deliver what it has promised. The main reasons are: first, the participation of all the actors or stakeholders was not equal or low. For example, Participation in the 'Ministerial' meeting did not even include Environmental Ministers from Denmark, Germany and Latvia, which may indicate the low importance of this process for the countries mentioned above. Second, the issue of climate change is, in fact, widely missing from the entire BSAP despite the fact that this will be one of the most significant challenges the region will face in the coming years. Third, the financial source in combating all the identified problems of the sea is not sufficient. So that BSAP is not fully implemented since it does not involve all actors and has not enough funds to achieve its targets. WWF, as an environmental organization, is very crucial in the implementation of BSAP. It has actively been working with all its efforts in elaborating BSAP. As such, it immensely shows its readiness by taking sole initiatives in organizing all possible means of communications (seminars, workshops and conferences) with key stakeholders towards its implementation.

As a general guidelines and/or objectives of WWF and HELCOM, there are similarities between them on which both are working to have healthy and good status of ecosystem of Baltic Sea and clean environment. But they have critical differences on how to describe and address environmental problems /issues and mitigate them. WWF believes that in order to bring about a change on the environmental issues, there must be full participation of all stakeholders at all levels with their different stakes and perspectives and practice an integrated management of the sea by considering the political, social, economical, and bio-physical aspects. So WWF works to bring all concerned organizations'(governmental and NGOs) to create common understanding about environmental issues.

Table 9. SWOT Analysis practiced by WWF.

STRENGTH	**WEAKNESS**
• Raising awareness around the Baltic region • Encourage research • Collection of enough data related to eutrophication • Good environmental status with regards to eutrophication of the Baltic Sea.	• Lack of coordination and communication between countries and organizations. • Lack of political wills accountability and leadership of the governments. • Limited or low participation of stakeholders' conflict sat the organizational/sub national level. • Weak controlling and monitoring mechanisms and environmental issues are not full addressed. • No specific actions included in the BSAP to significantly limit the losses of P and N from agriculture.
OPPORTUNITY	**THREATS/CHALLENGES**
• An increase in the awareness of eutrophication problem in Baltic Sea particularly in Sweden and Finland • Unite the countries around the Baltic Sea in one shared action plan. Create platforms for discussion among different stakeholders in political, social economical and environmental issues. Create platforms for discussion among different countries/organizations.	-Less funding to attain the BSAP targets. Russia is not a member of EU. And, it is not in the board. It does not recognise the BSAP. -The present financial crisis which makes many NGO' shut and is gone due to lack of funds and money is shifting to bail out companies and industries. And fire out the employees. -Climate change like global warming which questions the sustainability of BSAP.

As mentioned above, the problems are inter-connected each other. So, in order to bring sustainable solution, all should be addressed side by side. But it does mean that all the problems have equal weight. For example eutrophication from diffuse source needs priority. Because it affects the aquatic ecosystem especially fish. Thereby it affects the people livelihoods that are directly or indirectly dependent on fish. Surprisingly, BSAP is not dealing on Fish. Rather it is considered as an industrial sector. However, Fish is part of the Ecosystem. Where as Hazardous substances are addressed by EU and Maritime is included in the NATUR 2000 agenda.

WWF is involved in raising awareness and capacity building of concerned parties (at national, regional and organizational level) through frequent meetings, discussions, conferences, workshops, seminars campaigns, magazines, internet, and leaflets. It uses all kinds of tools that could be used to enhance the capacity of all stakeholders in the Baltic Sea region. It also participates in financing pilot and small projects in cooperation with other organization. It involves in lobbying (policy makers) and model pilot.

Despite there is an informal communication between WWF and HELCOM, we deliver written and oral comments, reports so that HELCOME considers depending on its relevance and acceptability. But there is no direct contact with HELCOM at the highest level. In order to have a good communication and viable feedback mechanisms, it must be built trust and account constructive rapports and proposals and incorporate in to the action plan.

“We do believe that the Swedish Environmental protection agency (SEPA) and Swedish Agricultural board which work under Ministry of Environment and Ministry of Agriculture should have more responsibility in BSAP implementation. Because both organizations are authorized bodies which have the notion of political will and very critical for the implementation of the plan”. Other organizations which are directly or indirectly involved in the Baltic Sea environmental problems should be responsible in as well”.

BSAP is a very slow process to attain its targets. The coastal areas are shown improvement through measures taken to combat eutrophication. But, the difficulty is the Baltic open Sea. If the existing situation tends to prevail, the implementation of the plan and restoration of the sea might

be unlikely to happen. WWF comments on that water quality should be entailed in the action plan. As a matter of fact, the catchment of Baltic Sea is four times larger than the Baltic Sea. So, the full implementation of WFD can resolve half of the environmental problems of Baltic Sea. BSAP should embrace the management of water quality in its plan.

"Lastly on behalf of WWF, I would like to say all stakeholders should involve in the management of Environmental problems of Baltic Sea, and work together for BSAP implementation. Also, there must be a control mechanism for the activities of all stakeholders in Baltic Sea".

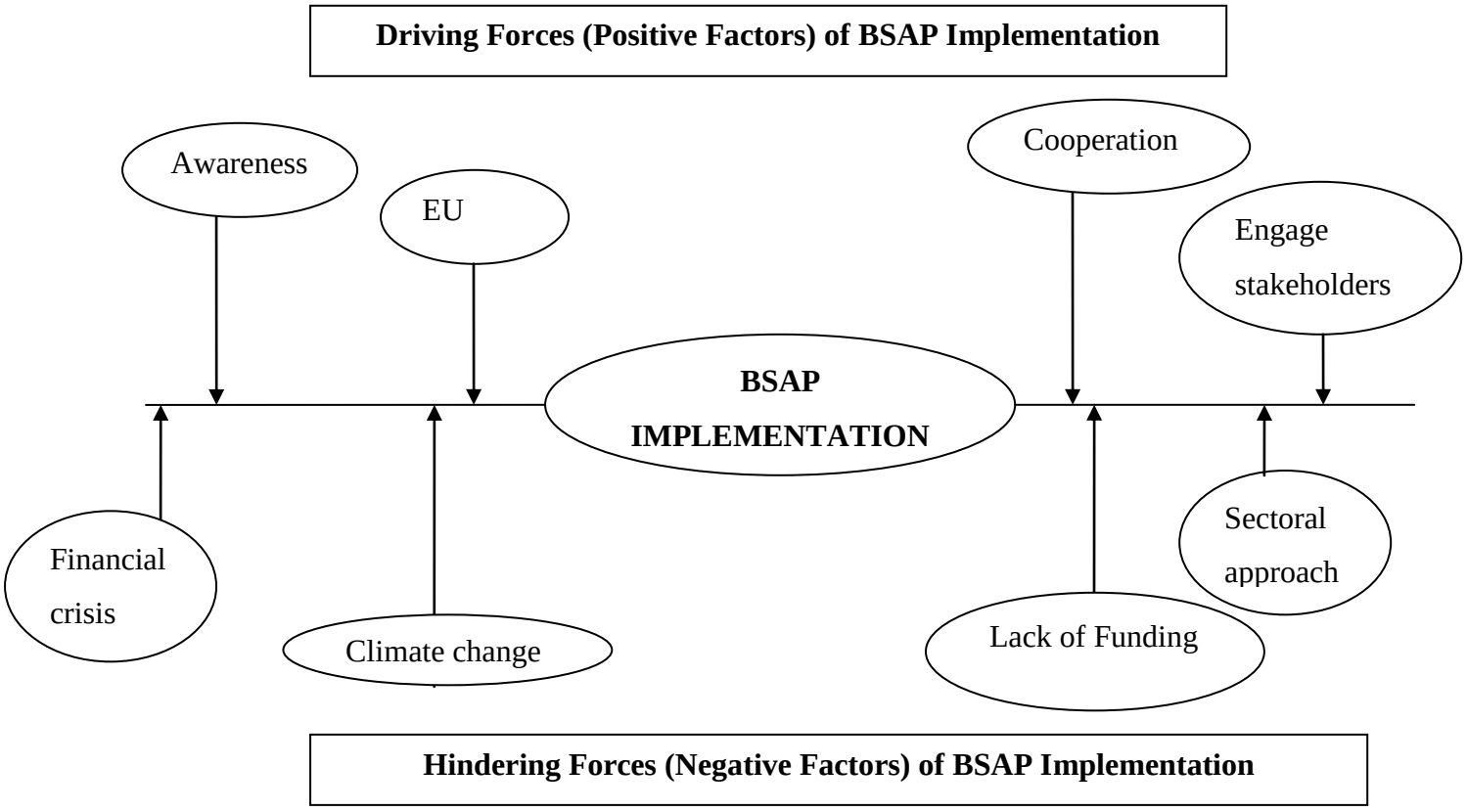

Figure 7. Force Field Analysis practiced by WWF.

This figure illustrates the closest the circle to the BSAP implementation, is the most hindering or driving force to BSAP implementation and vice versa.

The current situation of Baltic Sea is a very serious due to oxygen free at the bottom of the sea. And another factor is the climate change in the Baltic Sea itself and nutrient loading.

Table 10. Stakeholder Influence/Importance Matrix practiced by WWF.

High importance/low influence	**High importance /high influence**
• WWF • LRF • CCB • BALTIC 2020	• RESEARCHERS • HELCOM • FISHERMAN • EU-CAP, CFP
• GREEN PEACE • BALTIC 21 • UBC	• SEPA
Low importance/low influence	**Low importance/high influence**

This table illustrates that the most and /or least influential and important stakeholders to the BSAP implementation at national level in Sweden

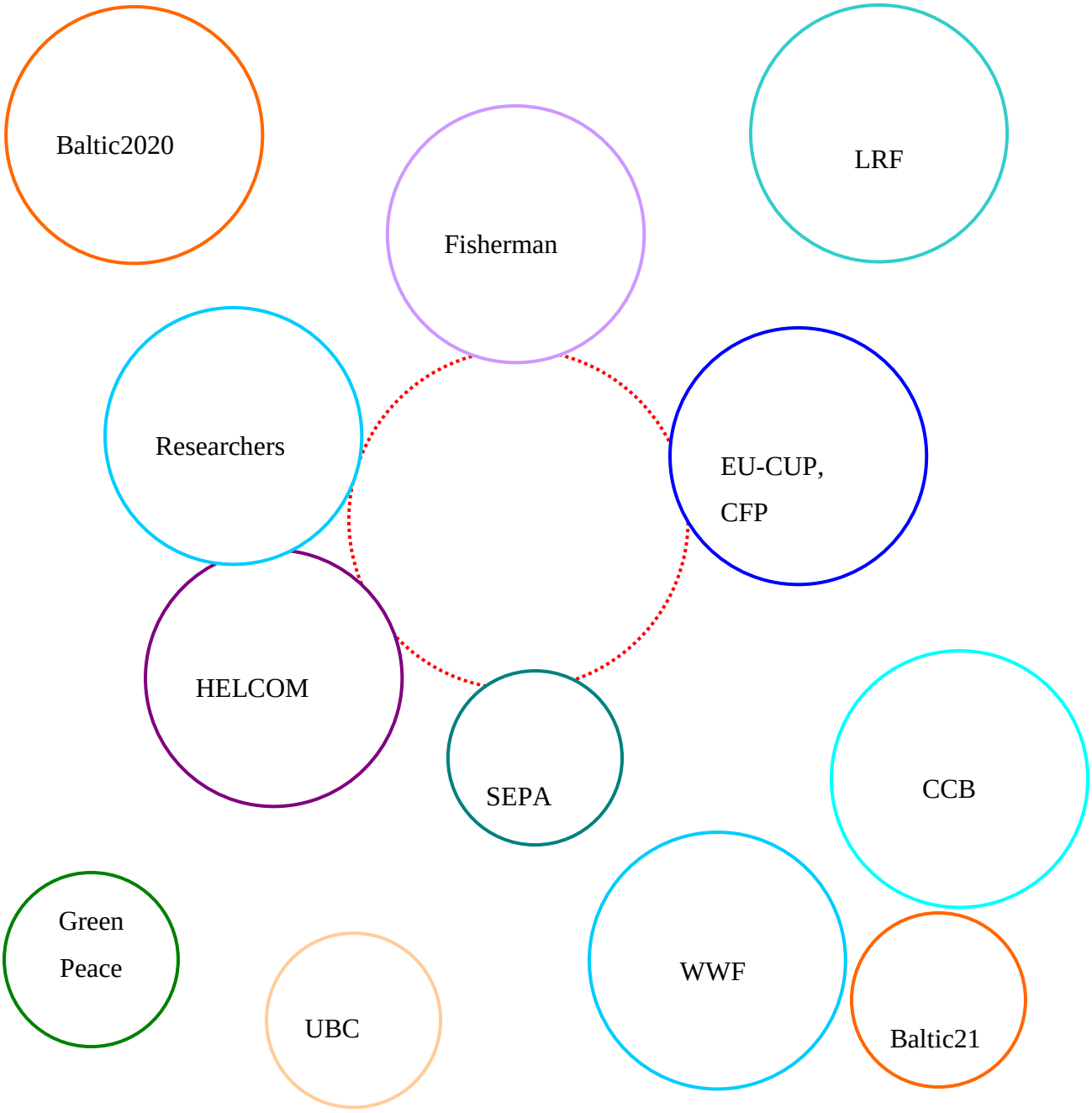

Figure 8. Venn diagram practiced by WWF.

The figure illustrates the influence and importance of stakeholders in BSAP implementation. The size of the circle and their distance from BSAP indicates their importance and influence. The

closer to BSAP the most influential and the bigger the circle the more important is the organization

5.1.1.7 Swedish Farmers Federation (LRF)

The BSAP does not fully address the environmental problems of Baltic Sea. Because no effective cost-benefit analysis has been made so far specifically for the quotas assigned for each riparian country has to reduce the nutrient loading. In the action plan, only a single which is known as MARE NEST model has been using in the assessment of nutrient loading in Baltic Sea. It is scientifically very unrealistic to reduce Eutrophication problem and other environmental problems of Baltic Sea with a single model. It should have been using several different and viable models in collecting and monitoring data so as to bring about concrete and sufficient results. Another drawback of the action plan is that it does not account the economic and social implications of farming communities, and its impact in Agricultural production in the region. Moreover, there is lack of funds for implementing effective measures considering all these aspects which seriously undermines the credibility of BSAP and its implementation.

"Generally, we perceive that the objectives and targets of the Action Plan are unrealistic and unachievable without full participation of all stakeholders in the formulation and implementation of the action plan at all levels, and within each riparian country. However, the action plan was formulated using the top-down approach without full participation of stakeholders at all levels. To be implemented in effective and efficient way, it should apply the participatory or bottom-up approach".

LRF plays a great role in taking actions on the measures proposed by EU Legislation. In regard to BSAP design, LRF did not engage in its formulation. It was just a political agenda. However, it is actively working in BSAP implementation by establishing small organizations with concrete objectives of building capacity of stakeholders at all levels and raising public awareness by making campaigns, distributing leaflets, publishing newsletters and promoting education/training individuals in practicing environmental friendly practices. Even though, most stakeholders have

been actively working in BSAP implementation, there is a lack of financial support which is one of the major problems that slows the process.

The country-quotas have not yet been source apportioned within all riparian countries. But given the preliminary quotas which are considerable for some countries can be foreseen that especially Russia, Lithuania, Poland, Denmark and Sweden as they have difficulties in achieving probable quotas for agriculture. Before signing the agreement it must be investigated if the quota-system will cause cost that will lead to unfair competition for farmers within the Baltic Sea countries.

There is no big difference between our organization principles' and HELCOM and even with other organizations concerning the reduction of nutrient loading in Baltic Sea. However, LRF perceives the BSAP package should be fair in terms of the quotas and be justifiable on cost-benefit analysis of measures taken by putting in to account the economic status of all riparian countries. Hence, HELCOM should ensure that all countries be very committal and equally contribute to the implementation of BSAP. There are some riparian countries which are not working effectively to attain the goals and targets stated clearly in the agreement they have signed. This might be due to the quotas is too large and the measures are costly to be practical with their current economic, political and social aspects.

From the four segments of BSAP, LRF gives priority to eutrophication and Fishery segments to be addressed urgently to reduce environmental problems in Baltic Sea, and thereafter a healthy and balanced ecosystem could be maintained. This is because, for instance, if we take eutrophication problem, it directly or indirectly affects Biodiversity. LRF has spent 60 million kronor for sustainable agricultural research, and 3 million kronor in Baltic Sea management for enhancing skills and building capacity of the stakeholders of riparian countries. So far, it spends totally around 200 million kronor in four BSAP sections: development of tools and methodology, awareness raising, capacity building and revision of BSAP. However, it does not participate in the revision of BSAP. It only delivers comments, suggestions and inquiries/critical questions about BSAP to authorized bodies such as HELCOM and SEPA.

LRF is regularly invited by HELCOM to attend regular meetings about BSAP. It has a direct contact with HELCOM via letters for delivering suggestions and comments about BSAP, and always intends to influence HELCOM to revise the action plan. However, HELCOM does not make any change on its fundamental principles and objectives of the BSAP. The only change that has been made so far is on the decrease of quotas for all riparian countries when nutrients loading from coastal areas have been reduced.

Table 11. SWOT Analysis practiced by LRF.

STRENGTH	**WEAKNESS**
• Each riparian country has quotas in the reduction of nutrient loading. • Agreement on the BSAP package.	• There is only one scientific model in use, and it is not enough to address the environmental problems in Baltic Sea. • It is not fair and justifiable in regard to the quotas.
OPPORTUNITY	**CHALLENGES/TREATS**
• An improvement has been achieved in the reduction of nutrient loading in coastal areas. • BSAP package is revised.	• It is very difficult to involve all farmers in the implementation BSAP due to lack of awareness of BSAP. • It does not account the economic and political implications of the riparian countries. • The recommended measures are very costly.

At the regional level, it is HELCOM which is responsible for the BSAP implementation. In Sweden, SEPA is a responsible body for BSAP implementation at the national level.

The existing feedback mechanism between LRF and HELCOM is not good and viable as the stakeholder is not fully participated in BSAP design and implementation even revision. Only one way of communication exists between HELCOM and LRF. This is due to that the BSAP is designed using the classical approach where stakeholders are not fully participated at all levels. Hence, BSAP is a political agenda.

At present, Baltic Sea is in a very serious situation unless some effective measures for adequate revision and implementation have been taken. It is obvious that Agriculture is the main contributor of nutrients loading in Baltic Sea. Nevertheless, there is a tendency of turning from extensive farming to intensive farming due to the global market competition which has an adverse effect to Baltic Sea. In the future, it can be predicted that there is an improvement in the eutrophication problem in Baltic Sea due to new input data. However, thorough attention should be given to nutrient deposition in Baltic Sea in the form of rain fall which is not part of the BSAP package. In addition, the BSAP package does not clearly state on what measures should be taken to reduce nutrient loading from the main contributor "Agriculture".

The challenge is not to sign the BSAP agreement but how to a make the BSAP works in practice by identifying all necessary measures for its full implementation. The hasty process in designing the BSAP makes this unlikely to happen which reduces the credibility of HELCOM. It is unbelievable to see that some countries do not have an idea of how to meet their quotas even they have signed the BSAP package. An unwell prepared agreement with no involvement of all agricultural actors/stakeholders and lack of benefit-cost analysis, would jeopardize the mutual interests of enhancing sustainable management and development of Baltic Sea.

Finally, it is very important to raise the following question which concerns for every person living in Baltic Sea region. "What have I done personally to reduce "N" and "P" nutrients loading to Baltic Sea?" In fact, no one has an idea and clue what to do about it.

5.1.1.8 Ministry of Environment

The Ministry of the Environment is very much involved in BSAP discussions and meetings as a delegate. It is a responsible body for natural resources management which includes Land Water

and Environment, and Swedish Environmental objectives to have balance in living coastal areas and Baltic Sea. Also, it actively works to achieve sustainable development. The resources of nature must be used in a way that will enable us to hand over a world in balance to our children and grandchildren. Priority areas in the government's environmental policy are actions to respond to climate change, support for technology with minimal environmental impact and ensuring that the Baltic and the Skagerrak and Kattegat are healthy seas. Market economy institutions, economic instruments and research and new technology are important tools in the work of the Ministry. When it comes to Baltic Sea, the ministry has environmental related stake as mentioned to its objectives. For Sweden, the Baltic Sea is very important because it has long coastline. Half of the Baltic Sea is basically Swedish but for the other countries may be is a little part of it so it is possible to say Sweden has more concern and stake than the others. The Ministry of Environment is in charge of the Swedish government in environmental related issues. In general, it is responsible for natural resources conservation, management and sustainable use.

One of the main problems for the Baltic Sea is eutrophication mainly from diffuse sources of agricultural activities. At present, agriculture is responsible for 50% load of nitrogen and phosphorous to the sea as a pollution source. Therefore, it is the main issue of BSAP. In relation to the severity of the problems of the Baltic Sea, the BSAP might not fully address the problems with its appropriate preventive and/or protective measures. But it is at least quite an important step because it is addressing pollution sources from different treatment water plant, house sewerage, and phosphorous detergents and largely from the agriculture sector so it is enough to start. BSAP is a very good start but it cannot influence and bring change in Baltic Sea as much as it is needed. It shares some common policies with EU. As an example the agricultural and fishery policies are few to mention. Above all, all the Baltic Sea issues can't be fully addressed by only HELCOM BSAP or the Baltic states individually, and hence big attention and care is expected and needed from international organizations too. For example shipping is an international and global activity so it needs global effort in order to address and mitigate all the Baltic Sea issues.

As mentioned above, the Ministry of Environment is in charge of Swedish government in making negotiations and signs contracts/agreements. And it works actively in many scientific, social, economical, political and mainly environmental issues to be considered and incorporated

to BSAP. It is active in all aspects in the formulation or development of BSAP. Regarding implementation, each country has to develop national implementation plan and that plan has to be ratified by 2010. Therefore, the Swedish environmental protection agency (SEPA), which is one part of the ministry of environment, is responsible to develop national implementation plan proposal. That proposal is scheduled to be ready in July so that it will be taking to different ministries for negotiation how to implement it. Apart from it, the ministry trying to raise money, for example, it has prepared of marine bill which went to the parliament on the 17th of April and asking budget for the BSAP.

One of the strength of BSAP is of course; it is a common agreement which has been negotiated with all the Baltic Sea countries and the EU. It is common approach and broad to cover many issues. However, the many problems are a question of implementation. HELCOM don't have any kind of enforcement mechanisms like legislation or directive. It is conventional and One cannot be sure that whether all the countries are going to take action based on their promise or not. On the other hand, HELCOM has many recommendations which are not fully implemented. And sometimes was not and will not be implemented at all. The main challenges are of lack of fund and political priority. Obviously some measures need enough money. But there is no enough resource and money to implement it yet. Lack of political priority is also in connection to it. Another critical issue is that the present world financial crises which is the biggest threat. Hence, some countries are hesitated to spend money on BSAP implementation. All countries have an opportunity to discuss with different organizations and among themselves about regional as well as international challenges so as to bring sustainable development with clean and safe environment.

The main challenge in Baltic Sea is to take BSAP as a political priority in different countries. And, they are not really committed and dedicated themselves and put financial resources to protect the Baltic Sea. But in Sweden, BSAP is very important as it has the longest coastal line and half of the Baltic Sea basically in Sweden. But, other riparian countries like Poland and Russia have little interest as they have relatively short coastal lines. Thus, Baltic Sea is not that much important to them.

There is a little difference between Ministries in stakes and perspectives on the importance of Baltic Sea concerning its development, and priority given to protect it. However, they have similar objectives in regard to the protection of Baltic Sea ecosystem.

Due to its multilateral effect, the eutrophication segment is the most critical problem and demands prime priority to be addressed. Because it is a problem which has number of negative impacts to the aquatic system such algal blooms, oxygen depletion at the bottom of sea, reduce biodiversity and fishery and poor water quality in coastal areas. Because of the nature of its sources it is very difficult to control. So improving Eutrophication problem is also solving the interrelated problems.

Hazardous substances are also problems, and have been working very well in Sweden. Sweden is pretty good control of Hazardous substances. So, it is improving in this segment as well. But, in Eastern Europe, they have discharge of a lot hazardous substances and have poor management and control system.

Biodiversity is very important as well, and the other three segments have an effect to biodiversity. In Sweden, there are many protected areas not only to protect biodiversity but also protect commercial fish stocks. Of course it has economic values.

Maritime activities are also very important segment in BSAP. Because Baltic Sea is the most intensively used shipping areas, and there are around 2000 ships crossing Baltic Sea. And, there is always a potential for big oil spills accidents in the Sea. Overall, eutrophication is given the priority number one to be addressed.

“In order to reduce environmental problems of Baltic Sea, we are working much to achieve maximum public awareness on all values of the Sea. We use all ways of media and public communication mechanisms and services to disseminate it and reach the possible environmental messages. We also involve in capacity building, such as by organizing seminars workshops and discussions”.

Ministry of Environment is a responsible channel for financing BSAP implementation as well as other projects concerning Baltic Sea environmental problems. Though it is not enough, it is for the first time in history to allocate 1 billon Swedish kroner for it. Depending on progress or limitations, SEPA is responsible for reviewing the BSAP. There is also a common HELCOM group who has a meeting four times every year to follow up on the action. SEPA is heavily involved in all discussions and meetings about BSAP and cooperating also with many different agencies such as fishing, shipping and agriculture agencies. Ministry of Environment and SEPA are in the middle of all issues of BSAP.

BSAP implementation group is the one which meets three or four time every year. It consists of all riparian countries and EU commission. Each country has its own group to implement BSAP. The aim of the group is that to share experience and efforts done by between countries in BSAP implementation at national level. There is new ministerial meeting in Russia to review the national implementation of BSAP in each and every riparian country. Its agenda is that each country to present its document about BSAP implementation and to be evaluated how much work is done to implement it in their respective countries. Basically, there is two way communications between Ministry Environment and HELCOM in delivering comments, suggestions and critics. And, there are some experts in HELCOM which works help countries in this and other issues.

In Sweden, SEPA is the responsible body to implement BSAP at national level in cooperation with Ministry of Environment.

The present and future situation of Baltic is a kind of optimistic which shows a possibility to do something for its improvement. Because, now, there are political interests to protect and save Baltic Sea , and many different international initiatives are going on like BSAP, EU level, Marine Directives, and so on. These processes could lead to a better environment. But it is very difficult problem which takes a long period of time to recover it especially eutrophication. It takes decades to see the progress.

Another important factor for BSAP implementation and Baltic Sea management could be the period of Swedish presidency of EU which is going to have EU strategies for Baltic Sea region adaptation, development and management.

The Ministry of Environment signed the agreement on BSAP and implementation at the national, and its role is just as facilitator. So, it is the responsibility of local actors and stakeholders to work on its implementation like Municipality to run waste water treatment and enforce legislation, SEPA to issue right regulations and Local County government to monitoring the progress.

5.1.1.9 Baltic 21

The stake of Baltic 21 is generally to have sustainable development in Baltic Sea region. To achieve this main objective or interests, it actively works to maintain sustainable economic growth, social equality, good environmental status and even economic improvement between countries. BSAP is also contributing toward advancing in the Baltic Sea region by coordinating goals and activities, and serving itself as a forum for cooperation across borders and between stakeholder groups. These provide a platform for governments, organizations, communities and people and to seek out new partnerships and strengthen those already in existence. By acting as a bridge between stakeholders, it aims to help Baltic Sea riparian countries make progress towards transforming our part of the world into sustainable region. It also participates in financing projects which demonstrate that sustainable tourism can produce economically profitable outcomes.

The main source of eutrophication is both from diffuse and point sources. The main contributor is the diffuse source which is from agriculture runoff and loading nutrients to the Baltic Sea. Baltic 21 perceives that implementation of BSAP is difficult as the new targets are hard to be attainable even the condition is improved to some extent in coastal areas. So the task is now harder even the impact is good to maintain healthy ecosystem status of Baltic Sea. However, it needs to take care of both the coastal area and the open sea. Because, BSAP implementation requires a platform for participating all stakeholders at all levels. As such, BSAP does not fully

address environmental problems of Baltic Sea. Above all, there are not legislation/directives for enforcing the BSAP implementation. HELCOM is a convention. So, BSAP is not a binding plan. It depends on the willing of the riparian countries to implement it.

Baltic 21 is officially involved in the formulation and implementation of BSAP. However, Baltic 21 wants BSAP put more efforts to the management of coastal area.

"We are engaged in fostering the BSAP implementation mainly by identifying funding sources to support Light House Projects and other regional level sustainable development initiatives. Light house projects are designed to demonstrate sustainable development in action, and encompass the objectives of high project-visibility, the participation of as many stakeholders from as many countries and sectors as possible, and the broader application of existing and new solutions. At present, we are approved sixteen light house project and partly funded by us".

Baltic 21 is involved in the revision and implementation of BSAP through its secretariat by engaging in regular meetings. It strives in public awareness by carrying out tangible targets such as publishing hand books, distributing leaflets and making campaigns and seminars to other stakeholders and other parts of society at all levels. Through agro-environment advisors, it offers training and education to enhance farmers, fishermen and private ship owners' capacity in maintaining sustainable development. Financing is done mainly by EU and partly coming from partners such as SIDA.

Baltic 21 is officially involved in HELCOM meetings through its secretariat. So, there is a good communication between HELCOM and Baltic 21.It reports developments in Baltic Sea and deliver proposals and suggestions for cooperation between different countries to HELCOM. But there is no formal exchange of information. It is just a dialogue.

The critical problem in Baltic Sea is that there is a gap between riparian countries at all levels. So it is difficult to implement without taking in to account the economic and social aspects of the riparian countries. There is no environmental benefit without economic benefits. No one wants to reduce nutrient loading in Baltic Sea just for environmental benefits. Proper attention should be

given to economic and social aspects as well. Economic incentives could enhance its implementation.

Table 12. SWOT Analysis practiced by Baltic 21.

STRENGTH	**WEAKNESS**
• All countries agreed on the BSAP. • Emphasize only on environment.	• Riparian countries do not put all efforts to implement BSAP. • It is not a binding plan.
OPPORTUNITY	**TREATS/CHALLENGES**
• An improvement is achieved in some coastal areas.	• The current economic crisis. • The policy and status of Russia in EU in general and BSAP in particular.

5.1.1.10 Green Peace

Greenpeace is an independent global campaigning organization that acts to change attitudes and behavior, protect and conserve the environment, and promote peace. And therefore, it has a stake/curiosity on Baltic Sea environment. It has a role in BSAP implementation but at the moment it only works with fish biodiversity. Green peace believes that agriculture is the main diffuse source of eutrophication but there are also point sources (industries, households etc...). It is a priority session to most organizations agenda. BSAP is an ambitious plan because it does not fully address all the environmental problems with appropriate solutions. So far it has not attained its targets. It will cost a lot of money, good political will and cooperation as well. Without the support of the highest level of government of each Baltic Sea state the environmental challenges of the Baltic Sea cannot be tackled by the BSAP in a comprehensive and integrated way. So it is

our threat is, whether it will be well funded or not and thereby bring sustainable solution to the environmental challenges we currently face.

During the negotiation of the action plan, Green Peace was pretty active both on the technical meeting level and in the final adoption workshop held in Poland. Green Peace did a couple of demonstrations. It brought a lot of algae and died code fish to tell that the environmental situation of Baltic Sea in general and the biodiversity of the aquatic system in particular are extremely affected. It conveyed strong message that the action plan should be strong enough to restore the sea. But it has not been yet so active in the discussions, meeting, and workshops and in implementing the action plan at national level.

"We believe that the implementing progression is a government job. And we are not part of the government; it is possible to say that it is not our task to implement HELCOM BSAP".

BSAP is strong in bringing together all Baltic Sea states, the EU and many concerned organizations, and seek solution for Baltic Sea and its catchment. In doing so, it is possible to say BSAP has raised awareness both at regional and national levels. Beyond the situation of the Baltic Sea, it is an opportunity to all Baltic Sea states to exchange ideas, information and make other political, social, and economic agreements. On the other hand, lack of an adequate amount of funds to get in to action leftovers as the biggest challenge. The present world financial crisis is another additional threat to the already existing challenge. The weakest part of the BSAP is fishery has not been given immense emphasis; it is treated in the biodiversity segment. The biodiversity segment itself is also weight too weak .so Greenpeace strongly argue that, it should be take care of as an independent segment and need better emphasis as well.

As mentioned above, Greenpeace has no formulated objectives to mitigate eutrophication problems (be it diffused or point sources) in particular so we don't have common specific purpose. But it does not mean that Greenpeace has no environmental rehabilitation objectives. All of the mentioned problems in BSAP need a rapid solution but eutrophication is the main problem. It has wide-ranging effect to the entire biodiversity of the Baltic Sea. Thus it needs

prior attention than the others do. By improving eutrophication problem, it is possible to save the aquatic life system; the problem is how to put the action plan into an effect/action.

According to Greenpeace, in order to put the plan into action, the awareness of all the individuals, communities, societies, organization/institution (governmental or nongovernmental) should be raised than what is happening at the moment. All has to be aware in identifying the main problems in order to bring concrete solution. It is not only the environment suffering but also all living organisms; therefore, Greenpeace is working towards increasing level of awareness through public media. It makes a lot of effort in to campaigns and rallies through Medias and its result is promising. All concerned bodies are getting worried about Baltic Sea and their livelihood connected to it. And thus Greenpeace strongly believe that it has been played positive effect in BSAP implementation. As an Ngo, it does not have the capacity of financing projects and capacity building. Greenpeace has no formal and direct means of delivering feedback mechanism back to HELCOM and/or among the other stakeholders regarding the BSAP. Rather it gets involved in stakeholder meeting which is hosted by HELCOM.

The government is the responsible body in implementing BSAP. It needs good political will, commitment and financial support. This is done only by government organizations. The Ministry of Environment is in charge of the government to represent starting from the action plan formulation up to implementation, but Green Peace does not believe that it is going to be effective without the participation of stakeholders. It is up to all of the concerned bodies including Greenpeace to change the plan into ground that is why Green Peace is working in support of it. As identified by HELCOM, many human activities in the region, on land and at sea, pose serious threats and result insubstantial impacts on the Baltic Sea. Those problems are multidimensional ones and therefore it needs multi cooperative/sectoral approach than the segmented one. In doing so it is possible to restore the sea on gradual basis

5.1.1.11 Swedish University of Agricultural University (SLU), Researcher "B"

SLU has two main stakes on Baltic Sea. The first, it does research to enhance the knowledge and experience on understanding nutrient loading in Baltic Sea specifically on eutrophication

problem. The second is monitoring programme where researchers monitor what is happening in Baltic Sea concerning environment, and develop models which enables to calculate the nutrient loads and identify its counter measures to reduce it. The main source of eutrophication is Agriculture. It contributes more than 50% of the nutrient loading (N and P) to Baltic Sea.

The first good thing about BSAP is that all riparian countries agreed and signed on its content and work on its implementation. However, it is a very ambitious plan as most of the countries have not yet implemented in practical reality. So, it has encountered with challenges to attain the main objectives and targets. Another main problem is that how to reduce nutrients loading in cost-effective way has not been identified in the action plan.

BSAP was formulated at the highest level where ministries (county parties) of all riparian countries met and agreed on the whole package. It was a political agenda. The role of SLU is cooperating with the responsible authorities for BSAP implementation's by calculating the nutrient loads in Baltic Sea and identifying cost-effective measures for its reduction. Its main role is in quantifying the quotas of each riparian country by working together with Swedish statistics office, Swedish metrological and hydrological office and Swedish Environmental Institute. SLU and these organizations prepare the quotas or figures and deliver/report them to authorized organizations such as SEPA and HELCOM.

"We are not responsible in BSAP implementation. However, we do research in developing tools and models in quantifying the nutrient loads and identifying cost-effective measures in countering eutrophication at the regional level. In general, we identify very important environmental issues in Baltic Sea and dealing with them to make BSAP implementation feasible".

The similarity between SLU and other stakeholders is that all agreed on the goals and targets of BSAP. But, there is a big difference between them on how to apply those objectives and targets in practical reality. Another critical issue in Sweden which is not part of BSAP is the water quality problem. So, BSAP should emphasize not only in Baltic Sea Environmental problems but also in land lakes, rivers and other sources of Water.

Table 13. SWOT Analysis practiced by SLU Researcher B.

STRENGTH	WEAKNESS
• All riparian countries agreed on the BSAP package including the four different objectives and targets. • Each is involved with its own agenda and takes initiation to come up in to consensus.	• There is a discrepancy between countries concerning human capacity and skills, and equipments and materials. • There are economic, social and political differences between themselves.
OPPORTUNITIES	**TREATS/CHALLENGES**
• Decrease of nutrient loads in some coastal areas, and revision of the quotas of each country. • Decrease of hot spots in some areas.	• To reduce diffuse sources in all areas/parts of Baltic Sea. • No cost-effective measures/models so far. • BSAP is very ambitious plan and very difficult to meet all targets. • It is a very slow process. It needs patience for counter measures to bring substantial changes. Because Nutrient loads are a continuous process. • Financial crisis • Implementation of counter measures is quite expensive.

The four segments of BSAP which eutrophication, Hazardous substances, Biodiversity and Nature conservation including fishery and maritime activities are equally very important issues in Baltic Sea. Hence, all should simultaneously be treated as they are inter-connected with each other. They have a significant impact on Baltic Sea if we see them collectively in one face and have a big picture of them as an ecosystem.

SLU is involved in raising public awareness of Environmental problems of Baltic Sea through projects in riparian countries especially in Lithuania, Estonia, Latvia and Russia. It also engages in capacity building by educating and training of experts and researchers of these countries in developing the same tools and models as Sweden for quantifying and monitoring of nutrient loads from different sources, and identify the possible counter measures at all levels. SLU is involved in the revision of BSAP by quantifying the nutrient loads and delivering it to authorized bodies annually and thereby purposely attain the zero eutrophication environmental objectives. SLU has no role in financing at all.

The existing feedback mechanism exists between SLU, and SEPA and HELCOM, is to do a national quantification of nutrient loads in Baltic Sea and deliver an immediate and regular report to them annually. SLU is obliged to quantify nutrient loading and report it annually to SEPA, HELCOM and EU in Sweden at a national level. There is a communication between SLU and HELCOM at national and regional level through quantification of nutrient loads and report it in an official way. HELCOM, SEPA and EU do consider the report and work to practice it as part of BSAP implementation.

The responsible bodies for BSAP implementation at national level is SEPA, Water authority and Swedish Agricultural Board. However, all stakeholders should be involved in order to attain the targets and objectives in efficient and effective way. So that, it requires national consensus to engage and participate all stakeholders at all levels in BSAP implementation. Thus, a rapid change is urgently required to involve all institutions to work together and respect their stakes and perspectives toward the eutrophication in Baltic Sea. Therefore, a plat form for stakeholders' participation should be established.

The present situation of Baltic Sea is serious. So, there is a need to cut down the import of nutrients to Baltic Sea, and attain all targets to have a better environment. But it needs persistence and patience. It can be predicted that the future of Baltic Sea is very challenging to account the effects of climatic change on nutrient loads and Baltic Sea itself (open sea).

At present, a discussion is going on in Sweden to weigh and compare the cost of the reduction of nutrient loads between Sweden and Poland. As a better and an alternative solution, such amount of money will possibly be granted to Poland in reduction of nutrients and assess it in cost-effective way. The purpose is to put Swedish money in somewhere else and assess the overall impact. Because, almost 50% of the polish people live around the Baltic Sea, and mainly dependant on Agriculture which is the main contributor to eutrophication in the Sea. As such, offering the Swedish money to Poland for taking counter measures to improve eutrophication problem in Baltic Sea can have better significant impact in the entire Baltic Sea.

The current major problem is the difficulty of identifying the diffuse sources of eutrophication at different scales/ levels such as national level, catchment level, local level, etc. Comparison of ways of implementing BSAP in all riparian countries at national level and cost-effective measures to tackle the same environmental problems at the lowest levels should be given a sound consideration in order attain all targets and objectives. Thereafter, healthy and good status of ecosystem of Baltic Sea could be maintained.

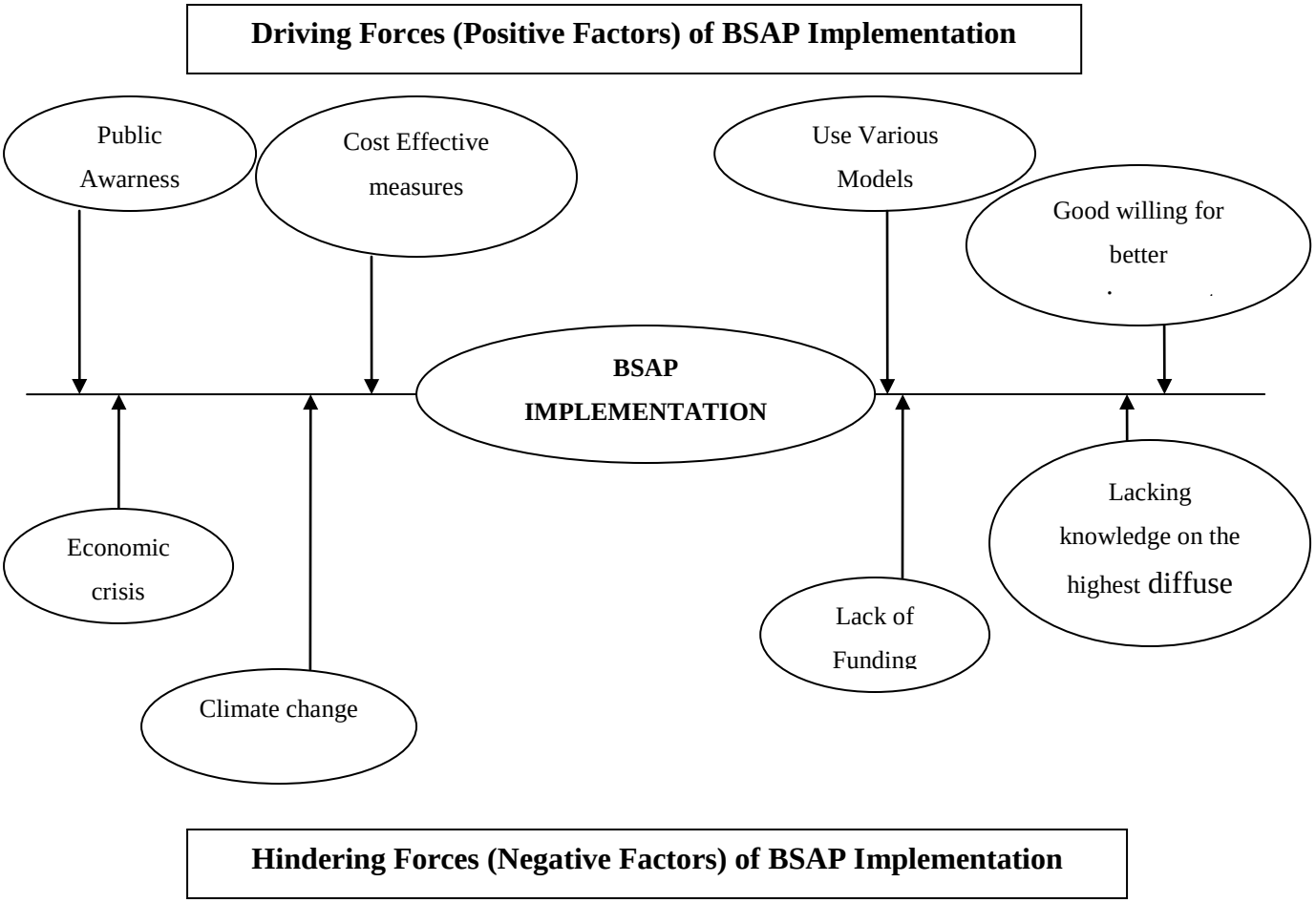

Figure 9. Force Field Analysis practiced by SLU Researcher B.

The figure illustrates the driving and hindering forces of BSAP implementation by which the closest to the centre (circle of BSAP implementation), is the most driving or hindering force to BSAP implementation and vice versa.

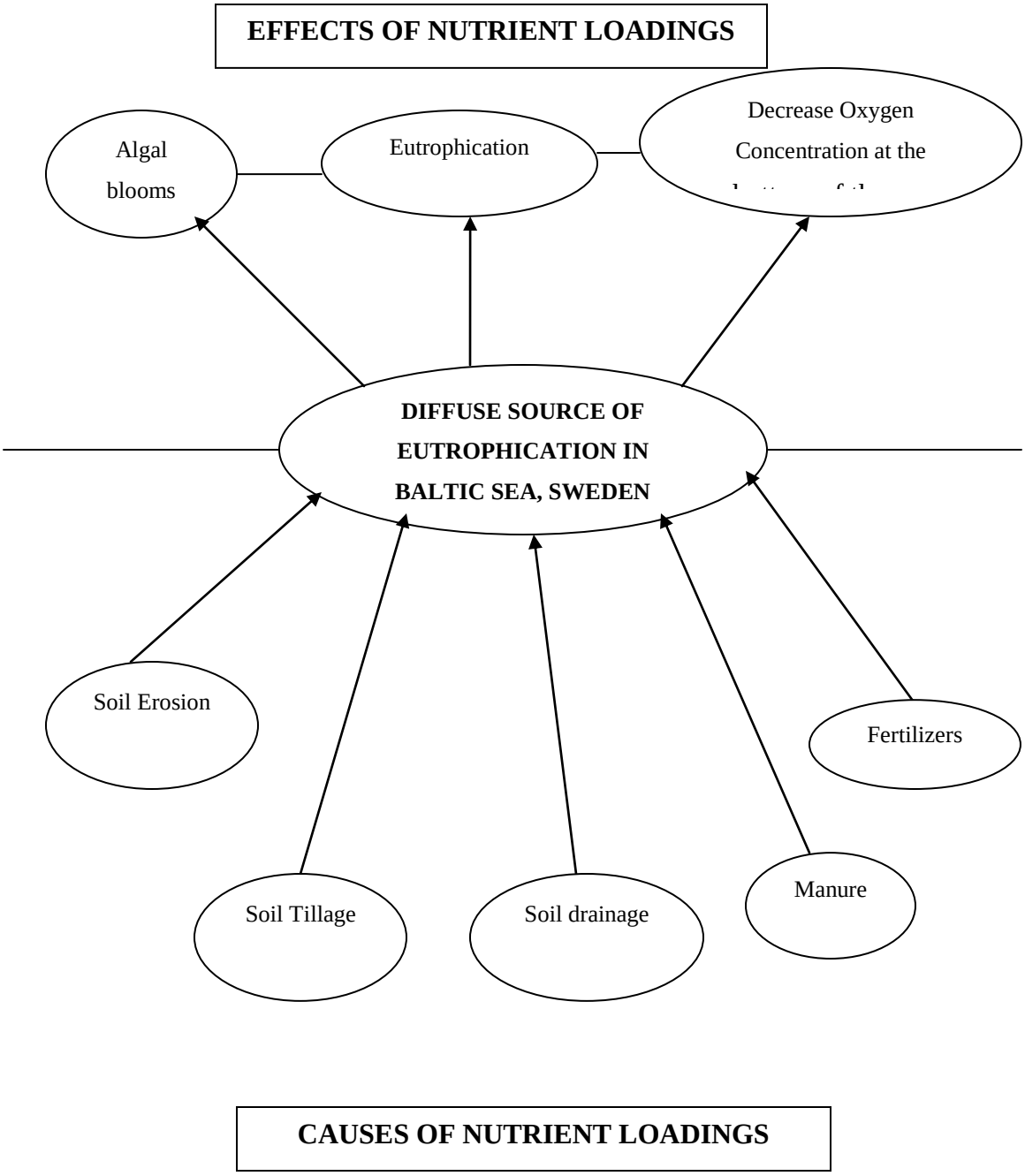

Figure 10. Problem Tree Analysis practiced by Researcher B.

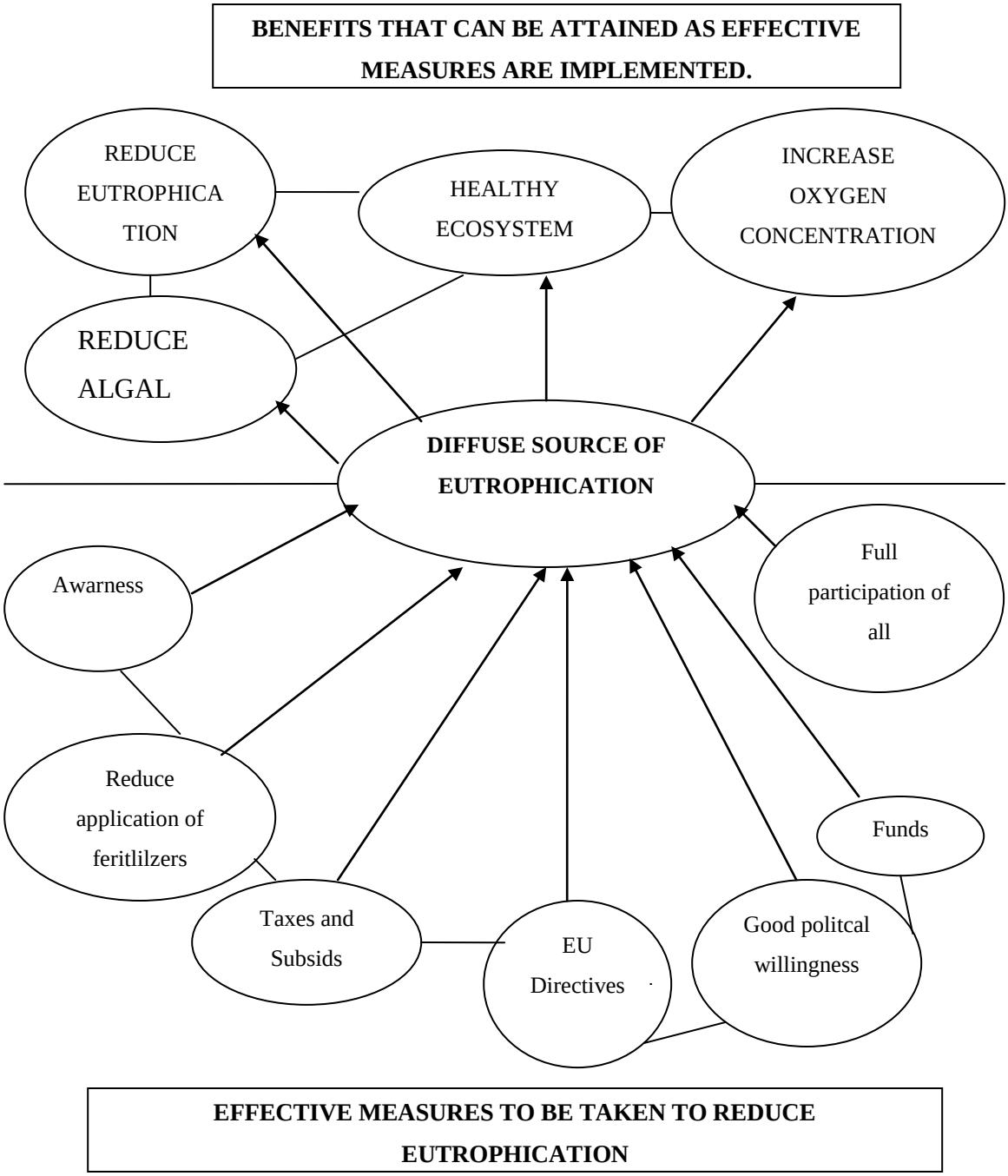

Figure 11. Solution Tree Analysis SLU Researcher B.

The figure illustrates the effective measures for the reduction of the Diffuse Source of Eutrophication, and their respective benefits.

5.1.1.12 Swedish Environmental Protection Agency (SEPA)

The Swedish Environmental Protection Agency (SEPA) is established in 1967. It is the national agency for environmental protection and nature conservation as well as outdoor recreation and hunting issues. Its key tasks are to present proposals for environmental policy and legislation to the Swedish Government and ensure that environmental policy decisions are implemented. Therefore, Baltic Sea and its catchment is its main stake.

Aquatic ecosystems in Europe in general suffer from eutrophication caused by excessive input of nutrients, namely nitrogen and phosphorous, from various anthropogenic sources. The same case happens to Baltic Sea too. SEPA acknowledges that agriculture is the leading source of nitrogen pollution and that in some EU countries including the Baltic States. It is also becoming the main source of phosphorous. According to SEPA, sources of eutrophication are divided as: Urban sources of eutrophication include domestic sewage, industrial wastes and storm drainage. The contribution of nitrogen and phosphorous per person is 10.8 g N and 2.2 g P on average. Industrial sources may be of local significance, depending on the type of industry, the volume of effluent and the amount of treatment it receives. In most cases such type of sources are referred to as point sources. Rural sources (diffuse sources) include agriculture, forest management, and rural dwellings. Agriculture is a major contributor to nitrate pollution of freshwater; up to half of the nitrogen applied to crops is lost to groundwater. The loss of nitrate from agricultural land is largely caused by erosion. The other main source of agricultural eutrophication is livestock farming.

Considering the complex nature of any ecosystem, BSAP couldn’t fully address all the issues in the Baltic Sea. Moreover, there are intricate social, economic, political and natural problems. The interest, economic strength, political domination, environmental concern of the Baltic is very different. This revealed that multi system approach to the complex system of Baltic Sea is undoubtedly the best.

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STRENGTH	WEAKNESS
-Well developed monitoring system on the environmental quality of the Baltic Sea. Good scientific knowledge base for management of the marine environment. -Established integrated coastal zone management and river basin practices at the local and regional level as a good potential for transnational co-operation. -Great nature values of European interest, relatively high quality of environment (incl. vast forest areas) and important cultural heritage	-Lack of joint actions and action plans to prevent and to combat the problems. -Lack of well coordinated joint plans to prevent and to respond to maritime accidents, incl. oil spills and contamination by hazardous substances. -Lack of transnational co-operation and joint planning in usage of Baltic Sea space and in reduction of risks caused by natural disasters .Lack of enough funds. -Lack of binding regulation or directive
OPPORTUNITY	**THREATS/CHALLENGES**
-Growing awareness of the poor status of the Baltic Sea environment. -Good natural and cultural heritage incentives to develop pan-Baltic tourism products as a measure for the BSR branding. -Good quality of the marine environment as an asset to fish stocks. -EU Marine Strategy Directive giving a higher status to protection of the marine environment and regional co-operation -EU Maritime Policy, EU Green Paper on a future EU Policy. -Good coordination among Baltic sea countries	-Uncontrolled exploration of marine resources leading to environmental hazards and/or use conflicts. -Lack of political commitment and low harmonisation of national management plans and legislation related to the marine environment. Insufficiently prepared administrative personnel at the highest levels. -Overriding economic development and weakening efforts to safeguard sustainable development of the Baltic Sea and its catchment area Natural disasters.Financial crises

Table 14. SWOT Analysis made using secondary data.

By the same analogy it is impossible to say BSAP has included all the required information, technical and technology, approach, and resources. But at least it identifies that agriculture is the main cause of diffuse source for eutrophication. Therefore it enabled to bring together all the Baltic countries, European Union and Ngo's so as to discuss and solve the problems and challenges.

Despite all the segments of BSAP which require an immediate solution, eutrophication needs prior attention because it affects the whole aquatic ecosystem. So that mitigating the problem of eutrophication means giving a solution to all interrelated problems such as biodiversity.

The role of the Swedish Environmental Protection Agency is in the interests of sustainable development which are based on the 16 Environmental Quality Objectives and on the three action strategies laid down by the Swedish parliament. SEPA is the central government authority in this field. As the central government authority for the environment, the Swedish EPA has the overarching responsibility for maintaining the national environmental quality objectives. Hence, on behalf of the Swedish government, in collaboration with the Swedish Board of Agriculture and other concerned authorities, it takes an assignment to propose a national plan for Sweden as part of the BSAP. Except with some financial limitations, SEPA is actively working to put the BSAP in to an effect. It gives directives, organize training, workshop, seminar both at national and regional level so that it increases awareness. It builds capacity via training or organizations by financing.

SEPA believes that it is possible to step forward with BSAP; but the greatest challenge is to reduce nutrient inputs. Under the preliminary burden sharing, Sweden is to reduce its nitrogen inputs by just over 21,000 tones and its phosphorus inputs by 290 tones.

5.1.1.13 Uppsala University Researchers- Strategies for Remediation of Eutrophication

It is very difficult- and certainly very important for Baltic Sea management- to try to set the costs to suggested remedial measures for the Baltic Sea (or for any aquatic system suffering from the increased anthropogenic nutrient loading). If this is not done, very costly mistakes can continue to be suggested and implemented (Lars and Andreas, 2008). Few examples could be mentioned:

One target of BSAP is to combat the ongoing eutrophication in the Baltic Sea based on perceptual (quotas) reduction of the actual nitrogen and phosphorous transport from the different Baltic Countries. This may sound politically correct, but it is not scientifically meaningful, since it should be evident that no natural systems on Earth respond to changes in percentages, only to changes in grams or kilograms. A 50% reduction of 10kg is different from a 50% reduction of 10tons (Lars and Andreas, 2008).

HELCOM has adopted a new strategy (HELCOM, 2007) to lower the eutrophication in the Baltic Sea by suggesting that 133, 000 tons of nitrogen and 150, 000 tons of phosphorous should be reduced from the present annual nutrient loading to the system. These suggestions are based on recommendations using the MARE NEST- model. HELCOM has also distributed these reductions to different Baltic countries, and e.g., Sweden shall reduce 20, 780 tons of nitrogen and 290 tons of phosphorous. The costs for these reductions are largely unknown, but they could be very high indeed. The consequences of a reduction of 133, 000 tons of nitrogen for nitrogen concentration in the Baltic Sea, cannot, be predicted with any high degree of certainty, since there are no validated mass-balance models for nitrogen at hand, only the MARE NEST- model. The changes in the target bio-indicators, such as the Sochi depth, the concentration of Cyanobacteria and the chlorophyll- a concentration related to the suggested reductions in nitrogen concentrations can then evidently not be predicted, and the consequences for the structure and function of the ecosystem, e.g., for the predator and prey fish production and biomass, can certainly not be predicted in any way (Lars and Andreas, 2008).

The costs for nutrient reductions are difficult to establish but one can give a few examples to highlight possible order of magnitude values. Malmaeus et al.(2007) have shown that the costs to reduce phosphates in detergents are less than 0.4 Euro/kg P, advice related to P- reductions in agriculture would cost 5-100 Euro/kg P, reduced P in feel for animals 5-7 Euro/kg P and cultivation and harvesting of mussels/clams about 35 Euro/Kg P. The target benefit should be how would a certain remedial strategy for reducing X toms of phosphorous for Y Euros in River Vistula change the water clarity, the Sochi depth, reduce the risks of blooming of Cyanobacteria and reduce the maximum concentration of chlorophyll-a in the Baltic Proper and/or the Gulf of

Finland? To address such issues, one needs a validated, process-based mass-balance model (Lars and Andreas, 2008).

One can safely assume that it is practically impossible to remediate all human emissions of total phosphorous to the Baltic Sea. The 15, 000 t/yr of total phosphorous transported via rivers/countries to the Baltic Sea. From Sweden and other countries or regions, which have already carried out costly measures to reduce nutrient discharges to the Baltic Sea, one can assume that only a smaller part of the remaining anthropogenic nutrient fluxes can be reduced, as suggested by HELCOME (e.g., 290 t/yr from Sweden).In the following scenario, all anthropogenic TP that can realistically be reduced by remedial measures(15,000t/yr) will be cut off a given month, month 25(i.e. in January).How would the Baltic Sea system react to such a hypothetical sudden change? This is what should be done according to HELCOM (2007) to improve the Eutrophication in the Baltic Sea system, but evidently not all at once as this scenario simulates, only gradually. In this scenario, we will also give predicted monthly data on Sochi depths, chlorophyll, Cyanobacteria, phosphorus, and nitrogen concentrations (Lars and Andreas, 2008).

In the second test, we will remove 7500t/yr of the phosphorous input to the Baltic Proper from countries/tributaries. In the third simulation, which is the result of many test series, we will present what may be called a more “optimal” remedial strategy than the one suggested by HELCOM (2007).This “optimal” remedial strategy is based on the following arguments:

It is unwise and sub-optimal to give reduction quotas to different countries (such a strategy is based on political considerations rather science). The strategy we advocate is based on the identified “hotspots”, so the idea is to target on larger basins with a high Eutrophication and reduce nutrient input to such systems. One can identify the Gulf of Riga and Finland as major, large hotspot areas in the Baltic Sea. We will focus on the Gulf of Riga and Gulf of Finland using the Coast Mab-model for the entire Baltic Sea system with its interconnected basins (Lars and Andreas, 2008).

Since there are no empirical historical time-series available on the total phosphorous loading to entire Baltic Sea (Larsson et al., 1985), one way to circumvent this dilemma and to learn about the historical changes in nutrient loading is to use generally validated mass-balance models such as Coast Mab to estimate what is required to describe recorded historical and known changes in Sochi depths (Lars and Andreas, 2008).

Because of many major changes in population structure, agriculture, future possible climatic changes, etc., it may not be possible to carry out measures that would bring the Baltic Sea ecosystem including key structural and functional characteristics, functional groups and species back to the conditions as they were, say 100 years ago, but it would be possible to reduce nutrient inputs so that the Sochi depth in the Gulf of Finland could return to the values about 7m. To reach such a specific goal, there must also be major reductions not just in the rivers entering the Gulf of Finland, but also in the rivers entering the Baltic Proper, since the water and the nutrient exchange between the Baltic Proper and the Gulf of Finland is very intense (Lars and Andreas, 2008).

5.1.2 Rich Picture of BSAP Adoption and Implementation

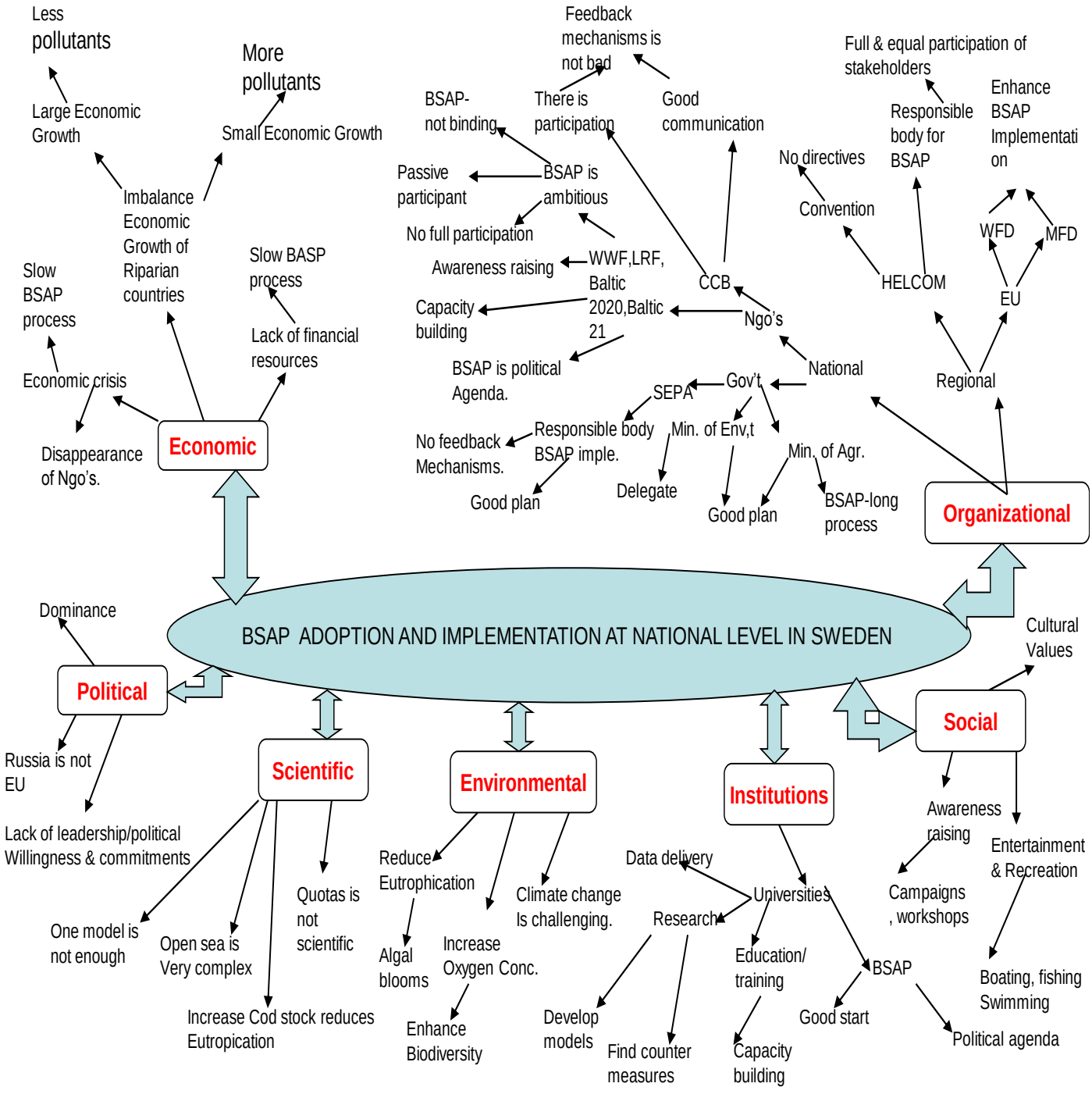

Figure 12. Rich Picture of BSAP Adoption and Implementation.

From stakeholders' points of view, the figure illustrates the overall activities carried out in BSAP adoption and implementation, and the factors which have an impact on it

CHAPTER SIX

6.1 RESULTS AND DISCUSSIONS (ISSUES ON FOCUS)

6.1.1 Stakeholders Participation

6.1.1.1 Cross Case Analysis

Baltic region is highly diversified in political and economic power dominance, organizational structure and democratization, social structure and awareness, economic development and interest of the riparian countries. And therefore, all the stakeholders agree that such a diversified pattern can highly influence the BSAP implementation process. Russia is not in the EU board as it is not a member of EU. As such, it is not expected to be obliged by EU WFD (Water Frame Directives), is a very serious challenge for BSAP implementation on which all stakeholders agreed on. The lack of legislation or binding force together with the current global financial crises and climate change is another threat expressed by all stakeholders for the BSAP not to be fully implemented both at regional and national level. The need of good political will, accountability and sound leadership of the governments of all riparian countries is found to be mandatory in order the BSAP to be fully implemented.

Some stakeholders are working very hard for its effective and efficient implementation but some are not. Even some Baltic countries have not yet prioritize the Baltic Sea problematic solution and BSAP implementation in their agenda. This is mainly due to the lack of political willingness and poor leadership of the governments. Consequently, it remains a very slow process. Thus, these are few of the main reasons which cause the outcome of the BSAP to be delayed or likely to be very effective after decades.

HELCOM clearly stated in its report that there has been active participation of all major stakeholders in the region during the adoption of the BSAP. This proves its relevance and significance for BSAP to be effectively implemented in reality. Apparently, HELCOM reinforced the relevance of stakeholders' participation by expressing the choices they make and reflect them to the entire society of the Baltic Sea. For this reason, HELCOM strongly argues

that the common vision of maintaining healthy Baltic Sea has been defined together with participating all stakeholders – from governments, through industry and Ngo's, right down to individual citizens, including older and younger generations, and organizations in both the private and the public sectors. In this regard, HELCOM strongly believes that the BSAP promotes employment and other aspects of sustainable socio-economic development, as well as ecological sustainability and healthy environment in the Baltic Sea region. All stakeholders agreed and appreciated that they are often invited and have an opportunity to articulate their ideas, comments and criticisms about BSAP during HELCOM meetings. However, the study result revealed that except SEPA, the Ministry of Environment and partly CCB, which are active participants, the rest are passive or observant during BSAP adoption process (Table 1).

Table 15. Type of Stakeholders and their Participation in BSAP.

Stakeholder/organization name		type				Participation in BSAP							
						adoption			implementation				
	G	NGO's.	INST.	RG /INT	NT	Ac	OB	None	AR	CB	FI	RE	None
Baltic2020		X		X			X		X		X		
Baltic21		X		X			X		X		X		
CCB		X		X		X			X	X	X	X	
SMoA	X				X		X		X		X		
SBoA	X				X		X		X		X		
SMoE	X				X	X			X	X	X	X	
SEPA	X				X	X			X	X	X	X	
SLU researchers			X		X		X		X	X			
UU researchers			X		X		X		X	X			
LRF		X			X		X		X	X	X		
WWF		X		X			X		X		X		
Greenpeace		X		X			X		X	X			

The table describes the type of stakeholders and their participation in BSAP adoption and implementation. G = governmental, NGO'S = nongovernmental organizations, INST. = Institutions, RG= Regional, NT=National, AC= Active, OB= Observant, AR= Awareness rising, CB=Capacity building, FI=Financing, RE=Reviewing.

The table illustrates that majority of the stakeholders are passive participants in the adoption and implementation of BSAP. It describes that they attend and present their proposals and ideas

about BSAP package in the regular meetings held by HELCOM. However, they are not involved in the discussion on the goals and objectives of the BSAP package during its design. So that, the level of participation is only restricted to ***Information sharing*** – This relates to informing the stakeholders about the action plan and its goals and objectives. The stakeholders have knowledge about decisions but are not involved in determining the goals and objectives of the action plan (OAS 2001). They don't have an opportunity to voice their concerns during the design and the process of implementation, and not providing regular information about the progress of the action plan as well. This proves that decisions are made without consulting stakeholders to the impacts of the action plan they experience. Furthermore, they have no influence on the decisions made by HELCOM and high delegates of riparian countries, and the lack of transferring control of decision making powers and resources to stakeholders apparently prevails in (OAS 2001).Thus, there is no Consultation, Collaboration and Empowerment or Ownership levels of participation of stakeholders in BSAP adoption and implementation at national level in Sweden. Hence, the level of participation of stakeholders is not beyond to Information sharing. At national level, on the other hand, the level of participation of stakeholders in BSAP adoption and implementation is low as there is neither a platform for the stakeholders to be heard their voice before the decision is made nor has the power to influence it and bring change on the content of the BSAP package. Their engagement remains in getting information, and have knowledge about the decision made about the action plan through conferences, meetings and media. Therefore, at the national level, stakeholders are not fully participated in BSAP adoption and implementation in Sweden which might make the attainment of the four objectives of the plan to be very slow process.

6.1.1.2 Conceptual Framework and Modeling- Stakeholders Participation

6.1.1.2.1 Root definition

A system, which create a platform for equal and full participation of stakeholders having considerable influence and importance, and develop interaction, collaboration and interdependence among themselves and between HELCOM as a result of building mutual trust and understanding, sharing knowledge and experience so as to put BSAP into action efficiently and effectively

6.1.1.2.2 CATWOE Framework

Consumer	All stakeholders, inhabitants, tourists
Actors	CCB. LRF, SEPA, SBA, Universities, Ministry of Agriculture and Environment, HELCOM, Baltic 21, Baltic 2020
Transformation	the need for full and equal participation of Stakeholders → fully and equally participated.
Owners	HELCOM, SEPA, Swedish ministry of environment
Environment	EU WFD, global economic crises, political and economical hegemony.
Worldview	full participation of stakeholders can be an effective and efficient basis for BSAP implementation.

The CATWOE frame work emphasizes the need to examine the problem from number of viewpoints. Furthermore, it provides the analyst with a framework for ensuring that all points of views and interests are considered in the requirements elicitation, and describe the transformation process.

6.1.1.2.3 Conceptual Modelling

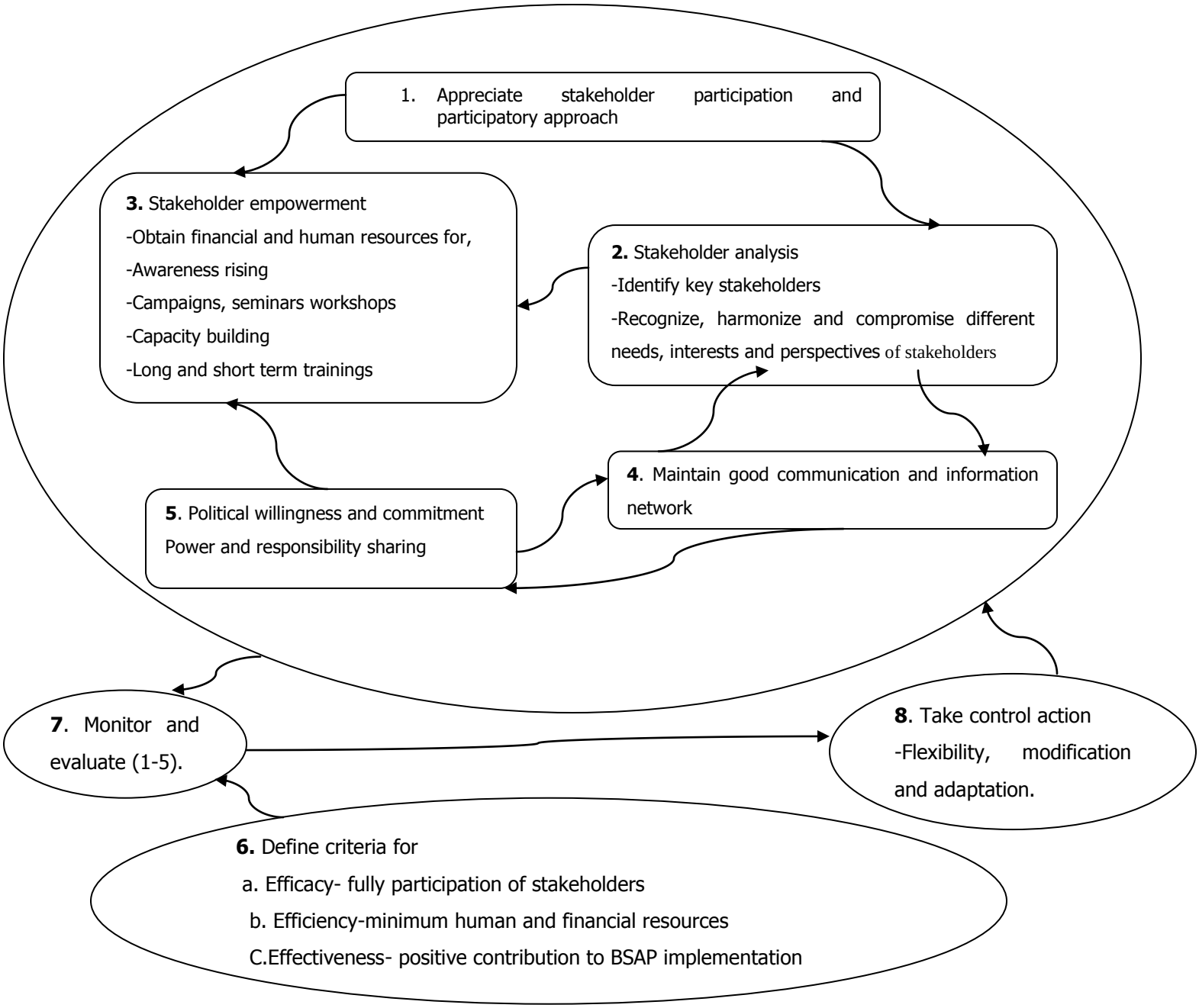

Figure 13. Abstract Conceptual Model of Stakeholders Participation.

The Conceptual model of activities developed from the root definition and CATWOE frame work above. It illustrates the activities to achieve full participation of stakeholders.

6.1.2 Stakeholders Feedback Mechanisms

6.1.2.1 Cross Case Analysis

One of the most important factors to the management of Baltic Sea in general and implementation of BSAP in particular, is communication between HELCOM/SEPA and stakeholders and/or among stakeholders at the national level. It enables them to build meaningful interaction with each other in sharing experiences and knowledge, and developing common understanding through cooperation and interdependence one on another which could be a ground for the accomplishment of BSAP targets and their own goals. It also enables HELCOM and Stakeholders to organize their human and financial resources and efforts in an integrative way which is the centre aiming to improve Baltic Sea environmental problems and thereby maintaining an integrated sustainable management and development in Baltic Sea region. Hence, a clean and a healthy ecosystem of Baltic Sea could be attained. However, in this regard, a critical question could be raised: is the existing communication and feedback mechanisms are well structured and viable in BSAP adoption and implementation? To answer this question, analyzing and synthesizing of stakeholders' perceptions toward these two important factors (Communication and feedback mechanism) are very crucial and rigorously elaborated as follows.

In this study, thirteen case studies of organizations and institutions were made.Each organization/institution represents as one stakeholder. At the national level, Sweden like other riparian countries is responsible to implement BSAP package in efficient and effective way through its governmental and non governmental bodies and agencies.

Attempting to analyze the cases, Ministry of environment has a formal communication with HELCOM. It always represents Sweden in the regular meeting about Baltic Sea at the regional level. But there is no viable feedback mechanism with HELCOM which is the responsible body for BSAP package. However, SEPA (Swedish Environmental Protection Agency) is a representative agency which works on behalf of Ministry of Environment, has formal and informal communication and good feedback mechanisms with HELCOM about BSAP package.

This shows that the Ministry of Environment is responsible body for BSAP package at the regional level. While at the national level, it is SEPA which is responsible for.

Researchers from Uppsala and Swedish Universities are directly involved for implementation and revision of BSAP through delivering information/ data about nutrient loadings and eutrophication in Baltic Sea and their counter measures annually. These tasks are done as part of their routine work and write report to SEPA. Accordingly, SEPA appraises the report and takes all necessary measures and makes adjustments in the implementation process as required even it does revision by having discussion with HELCOM if it is necessary. This shows that these stakeholders are responsible only for these tasks. So, they could only make comments and suggestions on BSAP package by quantifying nutrient loadings and investigating appropriate counter measures through having formal and informal channels of communication with SEPA. However, they do not communicate with SEPA in every developments and aspects of the BSAP package. Thus, there is a two way communication between them and SEPA but with some limitations. In this case, besides the downward communication channel between them, there is also a limited upward communication channel. Hence, there is a feedback mechanism between SEPA and these stakeholders but it is not as much viable as needed. This is due to that BSAP is designed on the bases of political agenda by which these bodies did not fully participate in its formulation. However, they officially participate in its implementation by delivering data of nutrients loadings and identifying their counter measures.

At the national level, they have no direct communication in delivery comments and suggestions to HELCOM. It is SEPA which is an authorized body for this matter. However, at the regional level, they have a direct communication and close cooperation with HELCOM in the design and implementation of Pollution Law Compilation (PLC), and building the capacity of the expertise of other riparian countries of the Baltic Sea

In general, the existing feedback mechanisms between Universities and HELCOM are not well established due to the reasons mentioned above. In similar situation, Swedish Board of Agriculture has two ways of communication with SEPA for a purpose of delivering data

concerning the effectiveness of different measures practiced on agricultural fields and farms using models and database.

From the case studies, there are around seven nongovernmental and independent organizations/stakeholders which directly or indirectly contribute to BSAP implementation through different activities.The majority of them has one way of formal and/or informal communication channels with HELCOM. The formal communication is carried out by which HELCOM invites all these stakeholders to attend regular meetings as passive participant (observant).During the meetings, they present their proposals/documents and comments in oral and written form to HELCOM, Ministerial delegates and authorized agencies of riparian countries such as SEPA. Thereafter, HELCOM considers the comments and documents depending on its relevance and feasibility on the basis of its own criteria for evaluation and adjustment of BSAP implementation. However, despite the stakeholders' frequent heed to influence HELCOM; it does not make any change on its fundamental principles and objectives of the BSAP. The only change that has been made so far is on the revision of quotas assigned for all riparian countries when nutrients loadings on coastal areas have shown significant improvements.

The informal communication is that these stakeholders often deliver reports which contain comments, suggestions, critics and critical questions about BSAP implementation to SEPA and HECLOM. But, they often don't get any feedback from them. Furthermore, they have no direct contact with HELCOM at the highest level. It is either SEPA or Ministry delegates which deals with HELCOM by having official meetings at the highest level. Hence, the communication is just one way of communication channel either upward or downward without feedback.

As Agarwal (1995) stated that "without feedback, communication process is incomplete as the sender has no way of knowing whether his communication (comments/critics) has been successful (considered) or not". He also stated that all that is required for communication to occur is that the receiver understands the intellectual message and emotional feelings of the sender in the same sense as intended by him.

Therefore, the existing feedback mechanisms concerning BSAP package are not viable for the stakeholders in providing comments and suggestions to and receiving feedback from HELCOM. Another major barrier for these mechanisms is that the BSAP formulation and implementation is based on the classical (sectoral) approach where there is no full and equal participation of stakeholders at all levels. Consequently, stakeholders explicitly stated that BSAP is a political agenda.

In contrast to the above points, there is a relative good communication between CCB and HELCOM even between CCB and SEPA in delivering proposals, reports, comments and critics. CCB uses all kinds of communication channels (Upward, Downward and Lateral) in corresponding with HELCOM, SEPA and stakeholders. As evidence, some parts of its proposals are entailed in the BSAP package. Relatively, CCB has credibility and influence on BSAP formulation and implementation. In addition, CCB has good communication networks with many stakeholders of the riparian countries of Baltic Sea. This indicates that CCB has upward, downward and lateral type of communication with HELCOM, SEPA and stakeholders. Thus, the existing feedback mechanisms are comparatively good between CCB and HELCOM/SEPA. However, CCB demands support from high delegates for its critics and comments to be considered and influence for a change and get a sound feedback.

Effective communication implies that the receiver should not only understand the message sent by the communicator but also accept and comply with its content (Agarwal, 1995).Even though CCB has all kinds of communication channels with HELCOM and other stakeholders; they are not well structured for establishing viable feedback mechanisms. Therefore, the existing feedback mechanisms cannot be considered as viable though it is better than the other stakeholders. Because of the influence of political power still prevails as an agenda in BSAP package.

Generally, there is no well structured communication between stakeholders in Sweden at the national level. Except CCB has a good communication networks with many stakeholders. As Agarwal (1995) stated that Communication is the central tool for sharing knowledge and experience and enables them to develop interaction and cooperation between them. In order to

establish viable feedback mechanisms, there must be well structured communication networks and channels between stakeholders and HELCOM/SEPA, and among stakeholders with enough materials, equipments, tools and methods, and human resources.

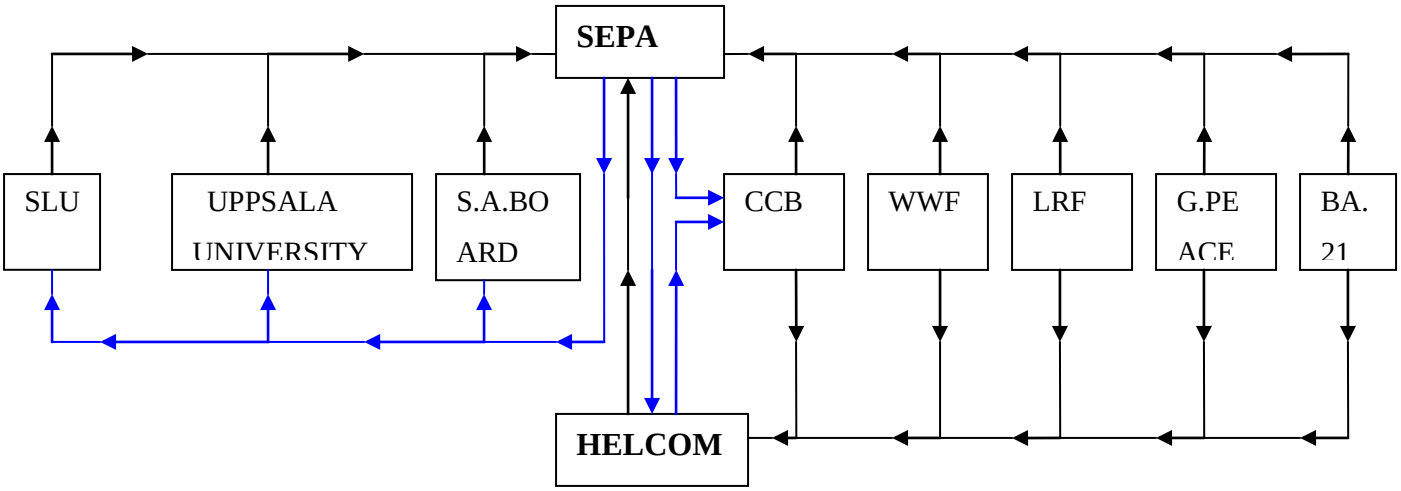

Figure 14. Description of Feedback Mechanisms.

This figure illustrates the existing feedback mechanisms in providing stakeholders' feedback to HELCOM/SEPA. It briefly describes the existing feedback mechanisms between stakeholders and HELCOM/SEPA and/or among stakeholders by identifying the existing communication channels and networks. The black and blue lines show that the upward and downward communication channels respectively.

Therefore, the existing stakeholders' feedback mechanisms in providing stakeholders' feedback to HELCOM/SEPA are not viable due to the lack of well structured communication networks and channels, and the use of the sectoral (top-down) approach for BSAP adoption and implementation.

6.1.2.2 Conceptual Framework and Modeling-Stakeholders Mechanisms

6.1.2.2.1 Root Definition

A system needs for a viable feedback mechanisms in providing stakeholders feedback to HELCOM and / or SEPA by enhancing appropriate channels of communication between key stakeholders and HELCOM/SEPA and among the key stakeholders for sharing information, ideas, knowledge and experience, and create a conducive environment for BSAP implementation successfully by ensuring their efficacy, efficiency, effectiveness.

6.1.2.2.2 CATWOE Framework

Consumer (C)	Key stakeholders, Local inhabitants, Tourists.
Actors (A)	LRF, WWF, Green Peace, Swedish Board of Agriculture, SEPA, Baltic 21, Baltic 2020, Ministry of Environment, Ministry of Agriculture, CCB, Researchers and HELCOM.
Transformation (T)	the need for viable feedback mechanisms ⟶ the need met (viable feedback mechanisms were attained).
Worldview (W) -	Well structured communication and viable feedback mechanisms have significant role for BSAP implementation in effective and efficient way.
Owners (O)	SEPA, Ministry of Environment and HELCOM.
Environment (E) –	EU WFD, Political Hegemony, Global economic crisis.

The CATWOE frame work emphasizes the need to examine the problem from number of viewpoints. Furthermore, CATWOE provide the analyst with a framework for ensuring that all

points of views and interests are considered in the requirements elicitation, and describe the transformation process.

6.1.2.2.3 Conceptual Modelling

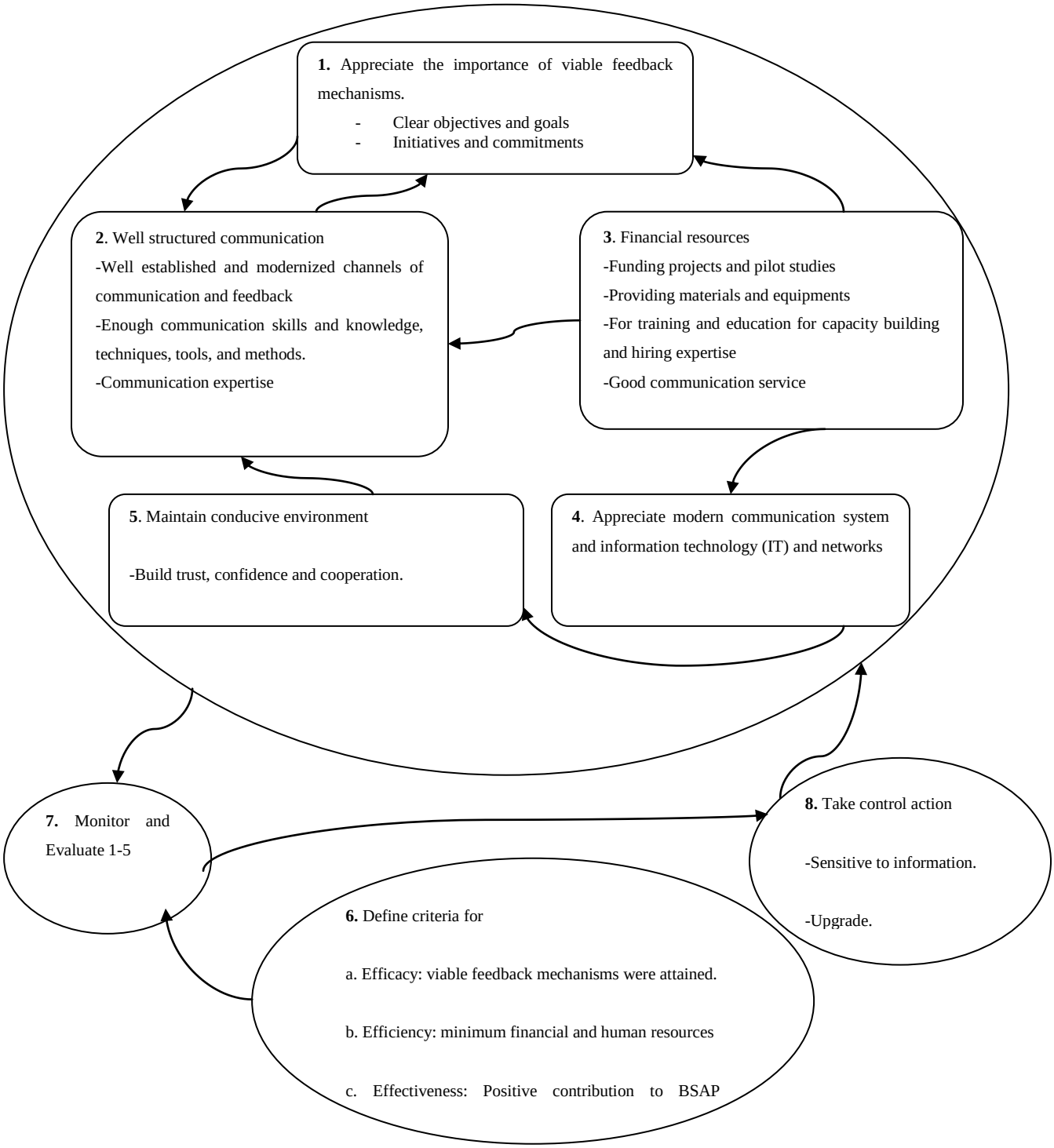

Figure 15. An abstract Model of Viable Stakeholders Feedback Mechanisms.

Conceptual model of activities developed from Root definition and CATWOE framework above. It illustrates the viable feedback mechanisms.

CHAPTER SEVEN

7.1 CONCLUSION AND RECOMMENDATION

7.1.1 Conclusion

In principle, The HELCOM and all the stakeholders have the same opinion that the participation and involvement of stakeholders is a key element for successful ecosystem-based management in general and Baltic Sea in particular. They strongly emphasized that stakeholders should be involved at early stage and continually in all phases of the BSAP process, including the planning, plan evaluation, implementation and post-implementation phase, and not just consulted afterwards.

But the study result showed that the participation of most stakeholders in a passive and observant status. Very few, namely SEPA, SMoE and CCB are participated actively and fully. Even though the level of participation, commitment and resources (human and financial) among stakeholders vary, all are implicitly participating in the implementation process at least, in awareness raising, capacity building, financing, and implementation and review of the action plan in an indirect way by carrying out projects and workshops. Except SEPA, MoE and CCB, the rest are not involved in the decision making process of BSAP adoption and implementation. They just have knowledge about the decisions made by responsible bodies and high governmental delegates. Thus, their level of participation is low and remains only in Information sharing about BSAP package through meetings, conferences and media.

Likewise, the means to deliver feedback (positive /negative) about the BSAP to HELCOM and among the stakeholder is not well structured. It is an informal way of communication.

Despite the interests, concerns and positions of the stakeholders is different, they all recognized and appreciated HELCOM BSAP as it is the first ever ecosystem sectoral based approach to mitigate the problems of Baltic Sea .They also agreed that The HELCOM BASP is an ambitious programme to restore the good ecological status of the Baltic marine environment by 2021. Its ability to bring all the Baltic riparian countries and the EU to an agreement fortifies the evidence

for its strength. The BSAP is perceived by all stakeholders as it is an opportunity to all riparian countries to make an agreement on social, economical, political agenda. However, considering the complex nature of the Baltic Sea ecosystem, all the stakeholders convinced that the BSAP doesn't fully address all the issues of the Baltic Sea. The lack of legislation, lack of enough financial resources and the current global economic crises are determined to be the major challenges to put the BSAP into effect.Moreover, all these stakeholders pointed out that the imbalance/gap in interest, economic strength, political domination, environmental concern of the Baltic countries and stakeholders will make the implementation of BSAP process very gradual.

Two abstract models to improve the level of participation of stakeholders and existing feedback mechanisms were developed on the bases of the perspectives of stakeholders at national level in Sweden. A comparison of these models with the reality was not done on the bases of stakeholders' feedback on the activities entailed within each model, and proper modifications and adjustments could be made accordingly. However, it was not possible to do it due to financial and time constraints. Hence, this and other weaknesses might bring discrepancies in the study result.

Therefore, the study concluded that without full and equal participation of stakeholders, the absence of viable feedback mechanisms, and large economic, political and environmental gaps between the contracting parties/riparian countries and the current global climate and economic challenges; the implementation of the BSAP is largely affected and remains as a very slow process.

7.1.2 Recommendation

First and foremost, strong willingness and commitments of the Baltic Sea riparian countries should be maintained that can contribute to strengthening HELCOM convention by having legislation and directives. As a matter of fact that Environmental Problems of Baltic Sea is very complex and multidimensional views, giving value and respect of the perspectives and stakes of stakeholders is the centre for the full implementation of BSAP. Hence, HELCOM and responsible bodies for BSAP adoption and implementation should use both participatory

(bottom-up) and classical (top-down) approaches blended contextually for BSAP adoption and implementation which creates platform for the full and equal participation of all stakeholders with binding forces. This also enhances the existing stakeholders' feedback mechanisms in providing stakeholders by giving them an opportunity to participate actively in HELCOM regular meetings and influence change in BSAP package as needed.

Even though stakeholder participation requires an investment of time and resources, it is critical that stakeholders are involved early and in all phases of the BSAP process, including the planning, plan evaluation, implementation and post-implementation phase, and not just consulted afterwards. Thus, there should be wide ranging and innovative approaches to stakeholder participation. However, stakeholder participation alone is not enough. In order to enable their full engagement, they need to be empowered by having enough financial resources and carrying out activities aimed at increasing awareness, knowledge, skills and institutional capacity.

Given scientific facts that Baltic Sea has diversified social, economic, and political aspects and bio-physical processes, it is very recommendable to use as many and various models as possible for addressing its environmental problems. In addition to MARE-NEST model, hence, an in-depth and broad scientific research should be conducted to develop the most suitable models for addressing Baltic Sea environmental problems considering all social, economic, natural and political factors of each and every riparian countries and stakeholders at all levels.

HELCOM and responsible bodies such as SEPA and Ministry of Environment should establish a well structured communication channels and networks with enough human and financial resources which maintain an environment for viable stakeholders' feedback mechanisms.

Based on scientific facts, one of the main challenging environmental problems in Baltic Sea is the improvement of eutrophication in the open sea. But, new studies suggest that there is a strong connection between the shortage of Cod fish stock and the extent of algal bloom afflicting Baltic Sea countries every summer which causes decrease oxygen concentration at the bottom of the sea. This indicates that a decrease in Cod fish stocks, there is an increase Sprat fish stocks which favors Phytoplankton and Algae bloom by reducing Zooplankton. These studies recommend that

increasing Cod fish population could get rid of eutrophication problem in the open sea while maintaining fish stocks sustainably. Hence, an in-depth research should be carried out in these studies in order to assess their practical effectiveness in the improvement of eutrophication in the open sea.

There are some riparian countries where their economy is largely dependent on Agriculture. Thus, they are the most pollutants of Baltic Sea as Agriculture is the main contributor of eutrophication problem, e.g. Poland. And they have low economic growth on which taking appropriate measures are unrealistic unless they get financial support which enhances their economic growth and reduce nutrient loadings by taking appropriate measures and searching for alternatives for agriculture dependence. Because, the most economical grown countries like Sweden, put a lot of efforts in terms of money and other resources to improve eutrophication problem in Baltic Sea. But the outcome is very small. Alternatively, it is recommendable to shift all financial and human resources for countering eutrophication to the less economic grown but most pollutants countries in Baltic Sea. Hence, a significant improvement could be attained even it requires a comprehensive study before taking such action.

In general, the above mentioned comprehensive measures should be taken by incorporating in BSAP package which enhance its full implementation. Therefore, a clean Baltic Sea with healthy ecosystem and sustainable development could be maintained.

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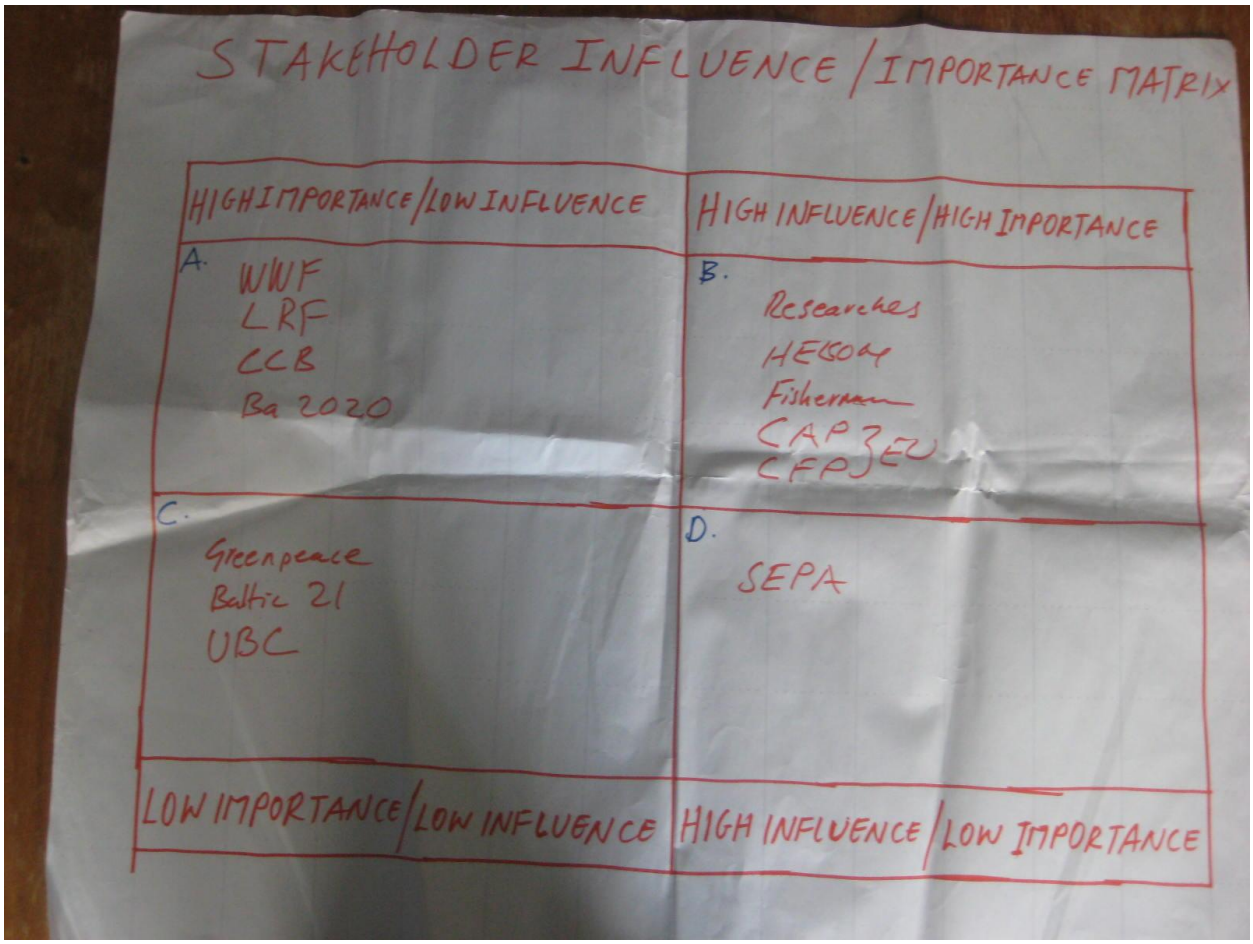
APPENDICE

Open-ended interview (Semi-structured questions) with key Baltic Sea stakeholders' in Sweden

1. What is your organization's stake/curiosity in Baltic Sea?
2. What is the main cause of eutrophication in Baltic Sea specifically about the diffuse source of eutrophication in Baltic Sea?
3. What is your perception towards BSAP implementation? Do you think BSAP fully addresses the problems of Baltic Sea with its appropriate measures with regard to the diffuse source of eutrophication in Baltic Sea?
4. What is the role of your organization in the BSAP adoption and implementation at national level?
5. To what extent is your organization get ready to implement BSAP? In what way/s?
6. From your organization's point of view, what are the main strengths, weaknesses opportunities, challenges and/or threats in implementing BSAP at national level?
7. Are there any differences and similarities between your organization goal and strategies and BSAP to improve the existing situation of Baltic Sea particularly diffuse source of Eutrophication?
8. BSAP has four segments. Namely, eutrophication, hazardous substances, biodiversity and nature conservation including fishery and maritime activities. What is your opinion towards each segment? Which one do you think should be given a priority to be addressed urgently? And Why?
9. Concerning the development of tools and methodologies of BSAP, there are four sections. These are: awareness raising and capacity building, financing, implementation and review of the action plan. So can your organization be engaged in these sections? If yes, how and if not why?
10. Do you have any feedback mechanism/s provision in BSAP revision and implementation?
11. At regional and national level, who do you think is more responsible in BSAP implementation?
12. What is your thought about the present and future situation of Baltic Sea?
13. Do you have any idea/opinion you want to add that we have not raised during the discussion?

ANNEX

ANNEX 1- STAKEHOLDER INFLUENCE AND IMPORTANCE MATRIX



ANNEX 2- FORCE FIELD ANALYSIS